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DESCRIPTIONS OF AND KEY TO AMERICAN POTATO VARIETIES

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Agricultural Research Administration

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Descriptions of and Key to American Potato Varieties

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CONTENTS

Page
Need for dependable varietal names 2
Review of literature 2
Characters used in classifying varieties 5
  Plant characters 5
  Flower characters 8
  Tuber characters 9
  Sprout characters 10
Key to 39 American varieties 13
Descriptions of 39 American varieties 18
  Blue Victor 18
  Brown Beauty 19
  Burbank 19
  Charles Downing 20
  Chippewa 21
  Dakota Red 21
  Earlaine 22
  Early Michigan 23
  Early Ohio 23
  Early Rose 24
  Garnet Chili 25
  Green Mountain 25
  Harmony Beauty 26
  Houma 27
  Irish Cobbler 27
  Katahdin 28
  Late Cobbler 29
  McCormick 29
  Mesaba 30
  Nittany Cobbler 31
  Norkota 31
  Pennigan 32
  Perfect Peachblow 32
  Pontiac 33

Page
Descriptions of 39 American varieties—Continued.

  President 33
  Quick Lunch 34
  Red McClure 35
  Red Warba 35
  Rural New Yorker No. 2 36
  Russet Burbank 37
  Russet Rural 38
  Sebago 38
  Sequoia 39
  Spaulding Rose 40
  Triumph 40
  Up-to-Date 41
  Warba 42
  White Gold 42
  White Rose 43
Notes on 14 other varieties 44
  Beauty of Hebron 44
  Blue Christy 45
  Columbia Russet 45
  Cowhorn 45
  Earlaine No. 2 45
  Early Blue 45
  Golden 45
  Improved Peachblow 46
  Mahr's Russet 46
  Peerless 46
  People's 47
  Sebec 47
  Strawberry 47
  White McCormick 48
Literature cited 48
Index to synonymous varietal names 50

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NEED FOR DEPENDABLE VARIETAL NAMES

The stability of the potato crop, one of our most important foods, depends largely on the use of correctly identified certified seed. Production of certified seed potatoes increased from less than 9 million bushels in 1933 to more than 29 million bushels in 1943.

Confusion regarding the true identity of some of the older varieties of potatoes has arisen from their being sold under numerous names. The causes of the confusion are the application of names to unnamed seed stocks obtained by growers for trial, the selling of seed stock of old varieties under new names, the filling of orders for extinct varieties or for others not in stock from bins of commonly known varieties, and the introduction of selections from old varieties under new names with the claims that they are earlier, have resistance to certain diseases, or are otherwise superior to the original varieties. The similar tuber and plant characters of many of the newer varieties make identification difficult and uncertain if adequate descriptions and a good key are not available.

Thirty-nine potato varieties that are now important or were formerly important in the United States have been classified and described from studies made in Aroostook County, Maine, where soil and climatic conditions are unusually favorable for the optimum development of potatoes. A few varieties of foreign origin, the survivors of a large number of those that originated in this country during the second half of the nineteenth century, and new varieties produced by the cooperative national potato-breeding program are included. The most recent introductions, for which complete descriptive data are not available, are omitted. Brief notes on 14 other varieties of less importance, however, are included.

The key and descriptions should prove very useful to inspectors of fields producing seed stock for certification, to the Federal-State inspection service, and to other Federal and State agents who have to identify potato varieties for certification as well as to those who are training inspectors.

REVIEW OF LITERATURE

In Germany many varieties had been developed at a comparatively early period, and several classification systems appeared in connection with the publication of variety lists. The earliest of these systems that has come to the attention of the authors is that of Putsche and Bertuch (*30*),[2] which appeared in Germany in 1819 and served there for many years as a standard for potato classification. Classification of the varieties into groups was based on the following characteristics: Number and size of aerial stems, color of flowers, method of propagation and source of stock, shape of tubers, smoothness or roughness and thickness of skin, color of skin, size of tubers, character of flesh, taste of flesh, productiveness, position of tubers in the soil, and period of maturity.

Another classification, which includes 173 varieties grown in the trial field of the Royal State Nursery near Potsdam, Prussia, was that of Director General Lenné, abstracted in 1856 by Goodrich (*12, pp. 210–217*). In this scheme there are 15 groups distinguished by different combinations of tuber characters such as color of skin, shape of tubers, and color of flesh.

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[2] Italic numbers in parentheses refer to Literature Cited, p. 48.

A system devised by Burk (*3*) and based on a study of 493 varieties appeared in 1914. It consists of groups distinguished by such tuber characters as smoothness of skin, flesh color, skin color, depth of eyes, and shape of tubers.

Extensive studies of European potato varieties by Snell (*33*, *34*) have been the basis of a system of classification in which the groups are designated by types each bearing the name of a variety representative of the group. In the first paper the groups were assigned to two sections, comprising varieties maturing early and medium early and late and medium late. The second section was subdivided according to the color of the tubers. In the second paper this scheme was augmented by additional sections and groups. In a subsequent publication (*35*) a grouping of varieties was based on the characteristics of the tubers and of sprouts developed in the light.

In 1928 Klapp (*14*) departed from the group system that had generally been followed by German authors on potato classification and presented a dichotomous key of the important varieties of that period. Descriptions of a large number of varieties were also included.

In France the first systematic studies of the cultivated potato were made on the extensive collections of varieties grown by Vilmorin (*40*). The classifications of this material were published from time to time in the Vilmorin catalogs. In the 1886 edition (*41*) the varieties were listed in 12 groups, differentiated by color and shape of tubers. These groups were subdivided into 30 sections according to shape and size of tubers, depth of eyes, color of the sprouts in the dark, and color of the flowers. In the 1902 edition (*42*) the same general plan was followed, but the number of groups was reduced to 9 and the number of sections was increased to 40.

A classification that included a large number of European and American varieties was published in 1928 by Ducomet (*9*). The descriptions are in tabular form with arrangements based on characters of the tubers, sprouts, flowers, stems, and leaves.

A very comprehensive study of many of the leading varieties of France and other European countries was published by Diehl (*8*) in 1938. Two systematic keys were given for the identification of varieties—one based on tuber and sprout characters and the other on vegetative characters. Detailed descriptions of the varieties were also included.

Bukasov (*2*) studied from the systematic standpoint the extensive collections of varieties in the Union of Soviet Socialist Republics. He presented a key in which the principal subdivisions were based on characters that were considered to be highly constant. These are the color of the sprouts, tubers, and flowers.

In Great Britain much activity in potato breeding during the past century and a half has resulted in the production of a large number of varieties. Extensive studies of the present-day varieties were made by Salaman (*32*), who published in 1926 detailed descriptions of those grown commercially at that time. A classificatory guide in the form of a systematic key, designed to serve as an aid in the identification of the most important varieties, was also included. It was based chiefly on the characters of the flowers and foliage, which are in evidence during the growing season.

Other studies of the varieties of Great Britain were made by McIntosh (*24*), who gave special attention to means of identification. For a study of foliage characters the varieties were assigned to 13 groups with a well-known variety designated as the standard of each group, which consisted of varieties resembling each other in general appearance of foliage. The essential features that formed the various combinations of characters were the contour of the foliage; the relative height of the stems; the number, branching, and coloring of the stems; the size, number, and set of leaves; and the distribution, size, shape, number, and color of the leaflets. A discussion was given of the tuber characters, which differentiate certain varieties during the growing season. In mature tubers the following characters were considered useful for identification: Shape, color, and condition of skin; position and depth of eyes; color and consistency of the flesh; type of second growth; and microscopic characters. These characters and the sprout colors formed the basis for a diagrammatic scheme of classification that included 87 varieties. Descriptive notes on 41 of the common commercial varieties were included.

Much information regarding the varieties of the Irish Free State was published by Davidson (*7*). Although no systematic schemes were included, detailed descriptions of 204 varieties and characteristics that distinguish many of the most important varieties were given.

The varieties of Peru have received the attention of several authors, who have published descriptive lists of many of them. The work of Herrera (*13*) is considered the first serious attempt to classify these varieties. A recent paper by Soukup (*36*) included a classification scheme for the varieties of the Department of Puno. Detailed descriptions of the varieties, including leaflet indexes as well as a systematic key, the principal subdivisions of which were based mainly on tuber characters were given. The colors of the sprouts and of the flowers constituted the main characters for the minor subdivisions.

In the United States over 300 varieties of potatoes had been named and introduced to the commercial trade before the beginning of the present century; yet it was not until 1909 that the first published classification of these varieties appeared. This system, adopted by Kohler (*15*), was based on a study of 78 varieties grown at University Farm, St. Paul, Minn. In this classification varieties having similar plant characters were arranged in groups, these groups were subdivided according to shape of tubers, and a further subdivision was based on color of tubers. A revision of this scheme in 1910 (*16*) included changes in several of the groups and the addition of another group, bringing the total to 12.

A classification by Ballou (*1*) in 1910, based on tuber characters, consisted of 7 groups which included 52 varieties grown at the Ohio Agricultural Experiment Station. A similar method used by Milward (*25*) in 1912 included the 10 leading varieties grown in Wisconsin at that time.

Fitch (*10*) in 1914 classified the varieties of interest to Iowa growers and dealers into seven groups. The group distinctions were based chiefly on tuber shape and color and the characteristics of the sprout tips.

A very comprehensive classification by Stuart (*38*), published in 1915, was based on a study of 140 varieties, which were assigned to

11 groups. In a later publication (*39*) the number of varieties in these groups was increased to 183. This number is believed to include most of the varieties of American origin which were in existence in the United States at that time. Another group was added to include certain varieties of British origin which were being grown in this country to a limited extent.

In the classification schemes reported from the United States the group system was followed; in this the varieties were assembled according to certain characters that they possessed in common and each group was given the name either of the variety that was best known or of the one considered to be representative. In some instances a subdivision of the groups into sections was made. This method was well adapted to the material that existed at that time. At the present time, however, most of the varieties that made up these lists have disappeared from commercial production and have been supplanted by new varieties, many of which do not fit into the earlier group arrangements. For the material that is now at hand, it is believed that a systematic key will best serve for varietal identification.

CHARACTERS USED IN CLASSIFYING VARIETIES

To be dependable the component parts of a key should be based on characters that are not subject to wide fluctuations. The potato responds readily to the influence of environment; consequently there is so much variability in many characters that care must be taken to select those that are fairly constant under the varying conditions under which potatoes are grown. In some instances where intermediate classes overlap as the result of variability, only varieties exhibiting the extreme expression of the character in question may be compared.

In this section a discussion is given of these characters (plant, flower, tuber, and sprout) found by the authors to be the most useful for the identification of the 39 leading varieties of potatoes now grown in this country or grown when the study was begun. The potatoes were grown in Aroostook County, Maine, where soil and climatic conditions are unusually favorable for their optimum development. Under less favorable conditions, particularly where intense sunlight and high temperatures prevail, different responses may be expected, affecting in various degrees such characteristics as habit of growth, profuseness of blooming, and intensity of pigmentation.

Plant Characters

In addition to the fluctuations due to environment, changes occur in the growing plant at different stages of development; for purposes of comparison, therefore, observations should be made at a definite growth period. Experience has indicated that the best period is about the time of the beginning of bloom.

Although the habit of growth is very distinctive in some varieties, it is so readily modified by environmental and developmental influences that it is rarely reliable for taxonomic purposes. The same is true of height and thickness of stems, which vary with richness of soil and other factors. If characters of the stem are used, they should be those of the main stem rather than those of the lateral branches.

The color of the stem is often useful for varietal identification. This character is, however, somewhat variable, depending upon the age of the plant and the intensity of light. In localities where spraying is practiced color is sometimes obscured by a coating of spray material. The stems of some varieties are entirely green, but those of others may be reddish or reddish purple as a result of the presence of anthocyanin pigments. The pigmentation may be localized at the base of the stem, or it may be distributed in other parts, particularly in the nodes or in certain internodes. In colored areas the pigmentation may be mottled or uniformly distributed.

The angles of the stem are more or less extended, forming what is known as wings. They may be prominent or inconspicuous, straight or waved, according to the variety. In some varieties they may be enlarged in certain sections of the stem, and in others they may be so close as to appear double (fig. 1).

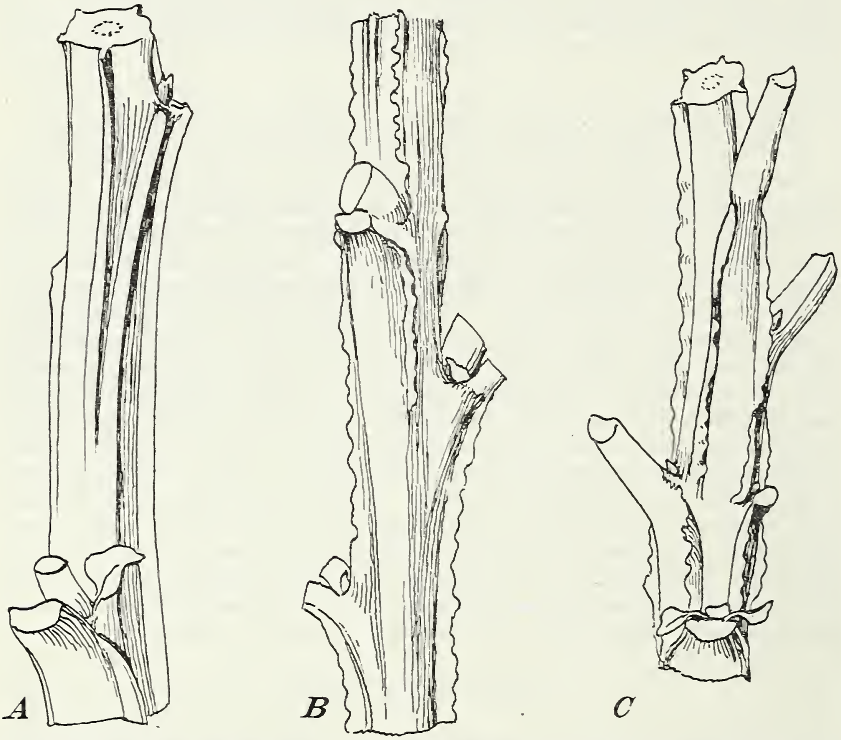


Figure 1.—Potato stems, showing types of wings: *A*, Straight, double (Pontiac); *B*, waved, single (Garnet Chili); *C*, slightly waved, double (Irish Cobbler).

The leaf of the potato consists of a petiole, a terminal leaflet, and several pairs of primary leaflets, interspersed with smaller secondary leaflets and sometimes tertiary ones arranged along the midrib. When the pairs of primary leaflets are widely separated and there are few secondary leaflets, the leaf is open. When the primary leaflets are close together and the secondary ones are numerous, the leaf is described as closed.

In certain varieties fairly constant characters may be found in the base of the terminal leaflets, which may be decurrent, somewhat truncate, or lobed (fig. 2). The lobes are sometimes cordate or rarely clasping. In the variety Chippewa terminal leaflets lobed on one side may occasionally be found, usually on the lower leaves. This is a distinctive feature when present, but it occurs in only a small proportion of the plants. The lateral leaflets are too variable to be of use for taxonomic purposes.

Because new leaves are formed at the extremity of the stem as it elongates, the foliage of a given plant consists of leaves in various stages of development. There is, therefore, a wide range of variation in them. For comparison of leaf characters of different varieties, observations should be made on leaves located on a definite section of the stem, preferably between one-half and two-thirds the distance from the base to the tip of the plant.

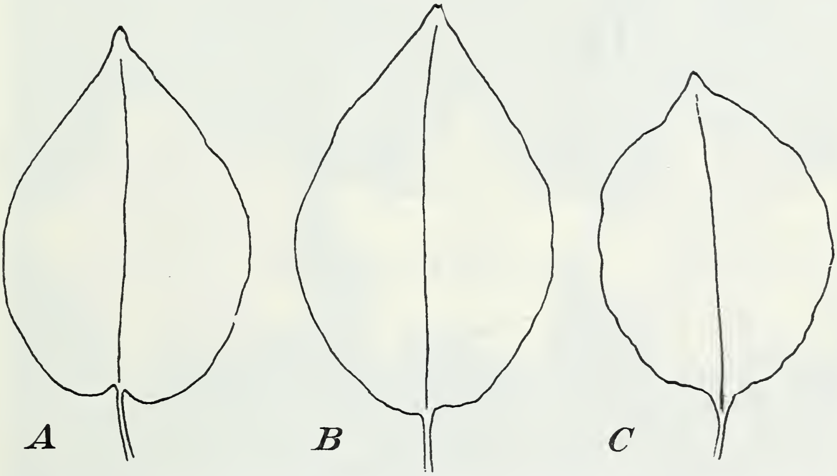


FIGURE 2.—Terminal leaflets of potato, showing types of bases: *A*, Lobed (Katahdin); *B*, partly truncate (Chippewa); *C*, decurrent (President).

The stipules at the base of the peduncles of the lowest inflorescence present varietal characteristics that are fairly constant (fig. 3). Occasionally they appear as relatively large, leaflike appendages, but more frequently they are much reduced in size. They may be spreading or entirely clasping the peduncle. Stipules also are generally present at the base of the leaf petioles. They are, however, so variable even in different parts of the same plant that they are of little value for classification purposes.

The color of the petioles is generally green or mostly green with some pigmentation on the upper surface of the basal end. In a small number of varieties the pigmentation extends down the entire length of the petiole. On the midrib the pigmentation, when present, is mostly at the junction of the petiolules with the midrib. In some varieties it extends to the petiolules, but it rarely extends into the veins of the basal part of the leaflet. There is, however, a tendency for the colors to fade as the season advances, so that it is only in varieties in which the coloration is very pronounced that this character may be considered reliable. Even then records should be taken at a specified stage of growth. The anthocyanin colors in the leaf parts are essentially the same as those in the stem.

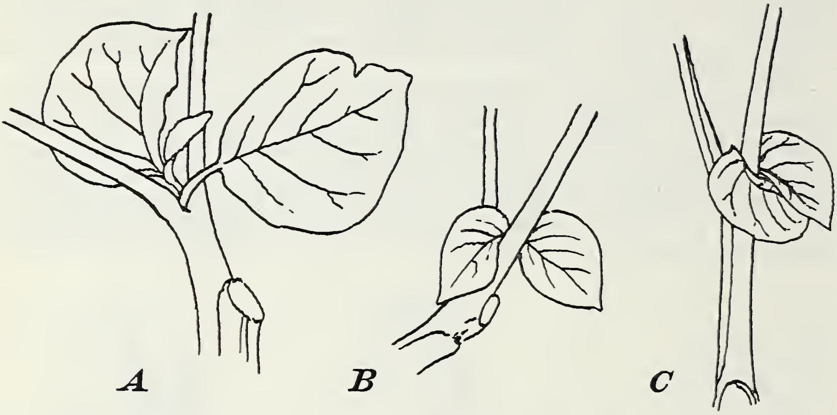


Figure 3.—Bases of lowest peduncles of potato showing types of stipules: *A*, Very large, leaflike (Earlaine); *B*, medium in size, spreading (Katahdin); *C*, medium in size, clasping (Green Mountain).

Flower Characters

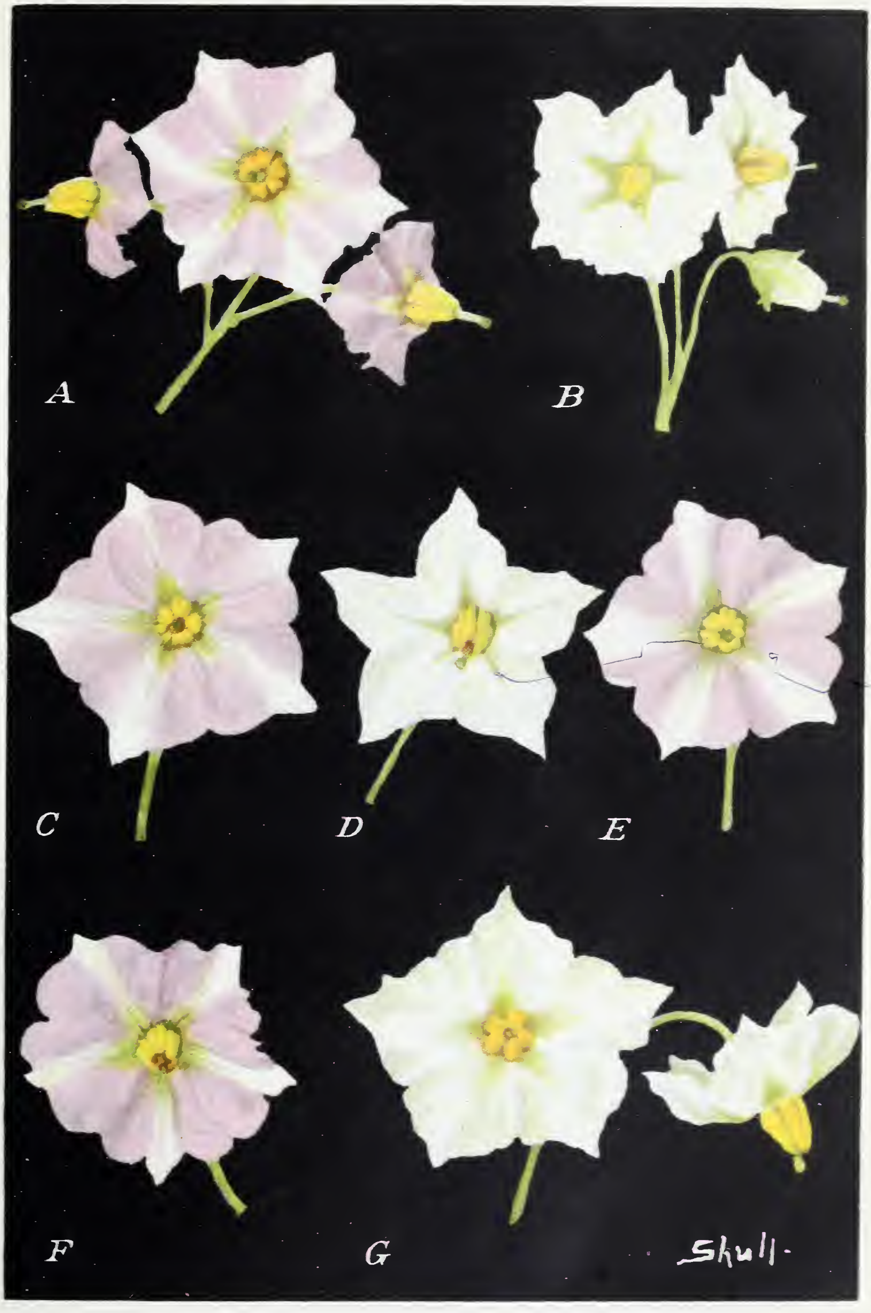
The flower cluster, or inflorescence, is borne on a stalk known as a peduncle, which may appear to arise on the main stem, on the petiole of a leaf, or in the axil formed by a leaf and the main stem. Studies by Krantz (*18*) indicated that the point of insertion of the peduncle is a character of taxonomic importance.

Usually more than one flower cluster is produced by the main stalk of each plant, the different flower clusters appearing at successive stages of growth of the plant. The peduncles of these vary greatly in length on the same plant; the one appearing first, which is the lowest on the stalk, is the longest. This is the only one that is of value for varietal comparisons of length.

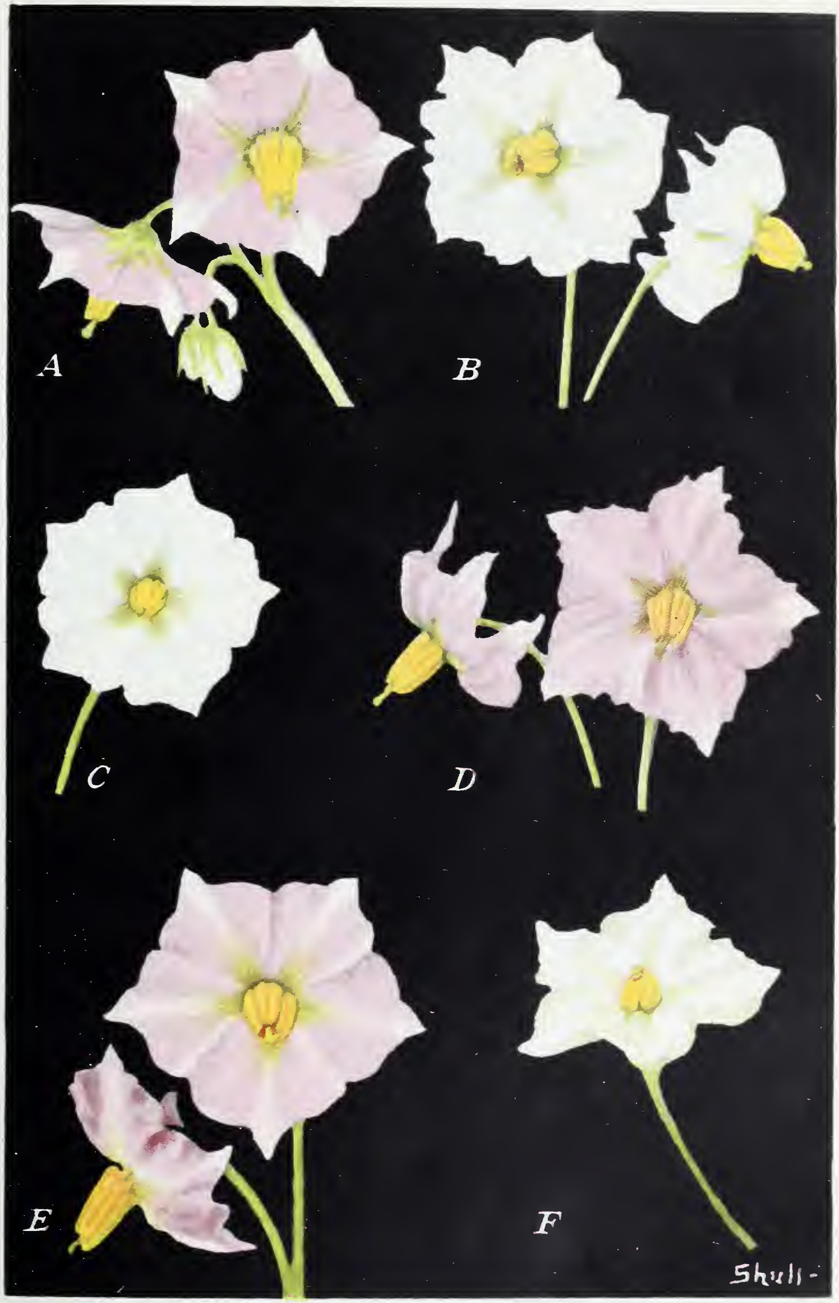
The upper part of the peduncle is divided and subdivided into branches, the ultimate divisions of which are known as the pedicels; the distal extremity of each pedicel normally bears a flower. On the upper half of the pedicel is a ring of corky tissue that marks the abscission layer at the point of separation of the flower or fruit as it falls. The relative position of this layer on the pedicel, its color, and the color of the portions of the pedicel above and below this point serve as good taxonomic characters in some varieties.

Under the same environmental conditions there are distinct varietal differences in the number of flowers produced. Certain varieties, however, may bloom profusely in one locality and only feebly or not at all in a different environment; therefore, number of flowers is of little value for distinguishing varieties except possibly in definitely specified localities.

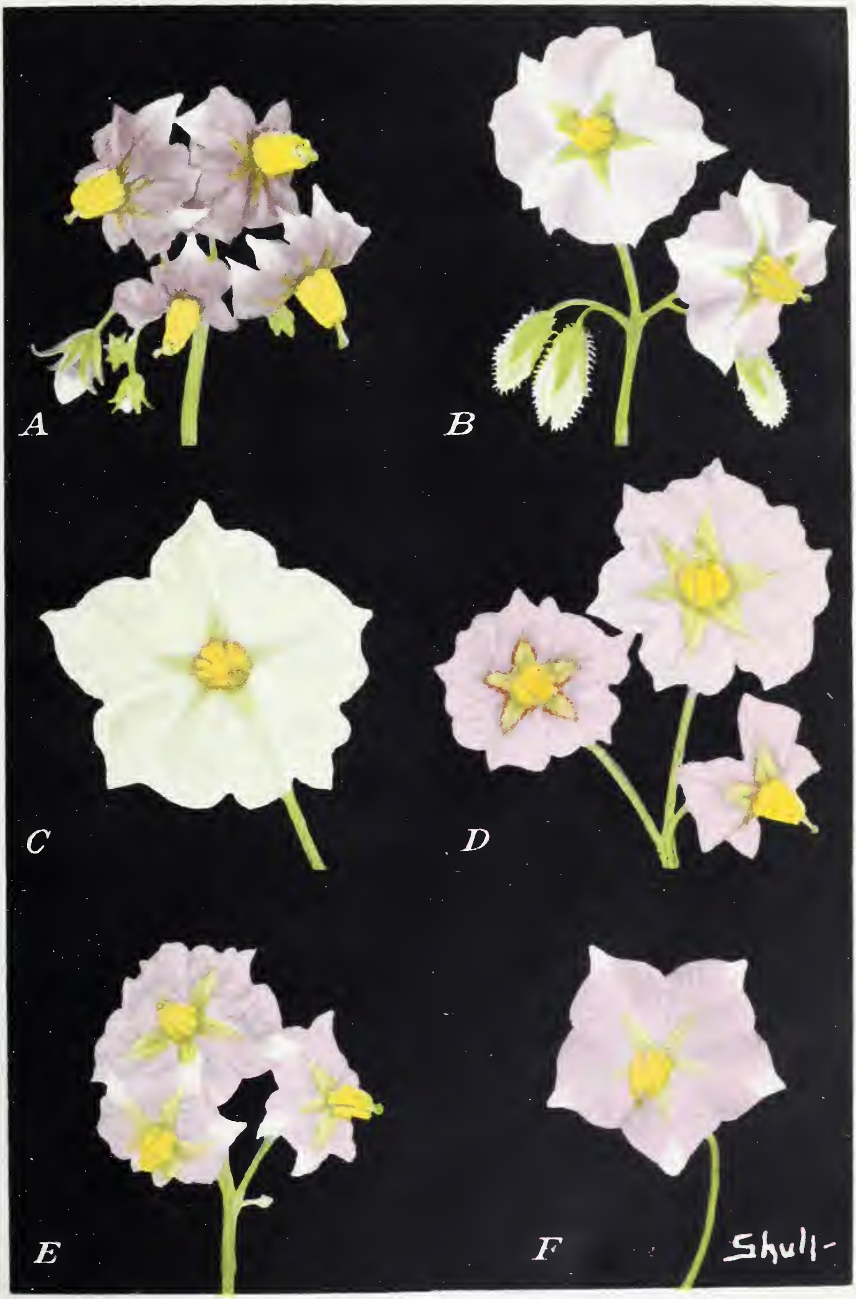
Pronounced varietal differences in the calyx lobes are few. In a



Potato flowers: *A*, McCormick; *B*, Sequoia; *C*, Chippewa; *D*, Burbank; *E*, Garnet Chili; *F*, Up-to-Date; *G*, Earlaine.



Potato flowers: *A*, President; *B*, White Rose; *C*, Early Rose; *D*, Sebago; *E*, Katahdin; *F*, Houma.



Potato flowers: *A*, Russet Rural; *B*, Dakota Red; *C*, Green Mountain; *D*, Triumph; *E*, Perfect Peachblow; *F*, Irish Cobbler.

few varieties the lobes are long, linear, and somewhat bractlike, but in most varieties they are awl-shaped.

Differences in the shape of the corolla are few and of minor importance, because all the varieties included in this study possess corollas of the rotate type.

Three groups of flower colors may be used as a basis for classification—white, reddish, and purplish (pls. 1 to 3). If the exact designation of a color is given, care must be taken to record it at a definite stage of development, because the color of the corolla fades very rapidly after the flower opens. The time for the most reliable record of flower color is as soon as the corolla is fully expanded, because at that stage the color within a variety is highly constant.

Color distinctions are also found in the anthers, which may be orange, lemon yellow, or sometimes greenish yellow.

The principal differential characters found in the pistils relate to length and straightness of the style.

Tuber Characters

In identifying varieties of potatoes during the growing season, a few instances may be encountered in which the foliage characters of two or more varieties are so nearly identical that a positive determination is impossible from these characters only. This is particularly true of varieties that are considered to have originated by mutation, such as Quick Lunch, regarded as a sport of Triumph, and Russet Rural, a sport of Rural New Yorker No. 2. Such varieties can be separated only by certain tuber characteristics.

Since the reddish and purplish anthocyanin colors in the skin of the tuber are evident at a relatively early stage of growth, even during the blooming period, the presence or absence of such colors can be detected when the tubers are small. The russet coloration, however, does not develop to any extent until the growth of the tuber is nearly completed.

In mature tubers color is one of the most important characters for varietal identification though it is sometimes subject to fluctuation as the tint of the respective colors is modified by the soil in which the tubers have been grown and by certain diseases, particularly by spindle tuber in some of the red-tubered varieties. Some fading also occurs during storage, particularly in flesh-colored varieties, such as Brown Beauty and Peerless, in which the faint coloration present at the time of harvest fades to nearly white. This loss of color may be a source of error in classification. Moistening with water is a valuable aid in detecting color of the skin in tubers.

The layer in which the color of the tubers occurs is also a distinguishing characteristic. In the varieties Early Ohio, Early Rose, Spaulding Rose, Harmony Beauty, Brown Beauty, and Blue Victor the anthocyanin pigments occur in the cortex. The pigmentation is found in the periderm, or cork layer, in Garnet Chili, Quick Lunch, Triumph, Pontiac, Warba, Red Warba, McCormick, Perfect Peachblow, and Red McClure. All the varieties included in the first group have white flowers, whereas all in the second group have colored flowers. This association of flower color and location of pigmentation in the tubers appears to be constant in all the varieties with colored tubers included in this study, except Dakota Red. This variety which has colored flowers and color in the cortex of the tubers, does not belong in either of these groups. It is possible that this variety may carry Lunden's *F* factor for flower color (*23*); if this possibility is substantiated, it would explain the apparent contradiction.

In the identification of varieties the use of the key (p. 13) sometimes may be restricted by the failure of some varieties to produce flowers under certain conditions of environment. In varieties with colored tubers the flower color can generally be predicted by determining the layer in which pigmentation occurs.

Tuber shape is extremely variable within a variety and in an individual hill. In a few varieties a large proportion of the tubers are of the characteristic type of the variety, as in the Triumph in which the tubers can always be classed as round and in the Russet Burbank where there is little deviation from the long type.

Some differences may be found in the prominence, length, and degree of curvature of the eyebrows, but they do not appear to be sufficiently constant to be of value for classification purposes.

Sprout Characters

When the sprouts of the tubers are developed under certain conditions of light, temperature, and humidity, they possess at definite stages of growth several characters that are valuable aids in the identification of varieties during the storage period (fig. 4). The colors when present in such sprouts may consist of either reddish or purplish pigments and are very constant within the variety.

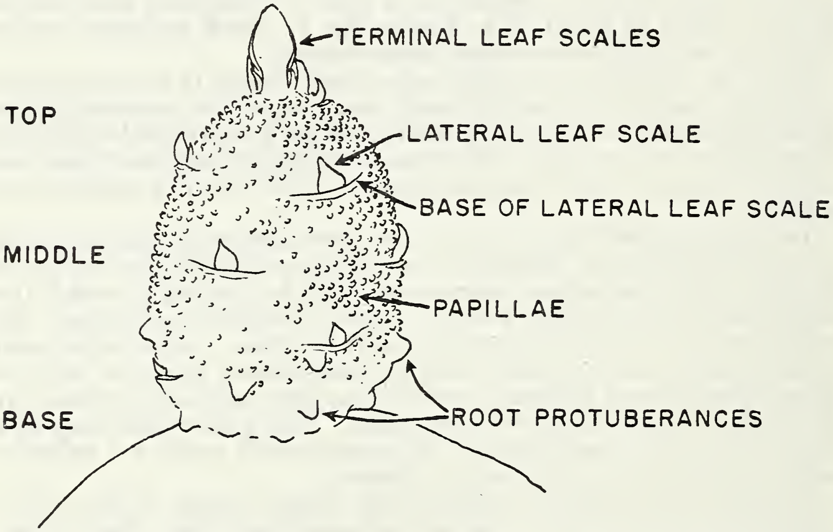


Figure 4.—A sprout developed in the dark, showing distinctive features useful in identification. × 3.

If the sprouts are developed in total darkness, the production of chlorophyll is inhibited, but in some varieties anthocyanin pigmentation may be found in certain parts, sometimes in the lateral leaf scales, but more often in the terminal ones (pl. 4). In a few varieties pigmentation may also be found at the base of the lateral leaf scales and at

TABLE 1.—*Descriptions of sprouts of 39 American varieties of potato developed in the dark*

[0, not colored (absence of reddish or purplish anthocyanin pigments); +, slightly colored; ++, intermediately colored; +++, deeply colored; 0, +, from not to slightly colored; +, 0, from slightly to not colored; quoted colors from Ridgway (*31*)]

TUBERS WHITE OR RUSSET

Sprout group and variety	Color intensity in—								Notes
	Leaf scales			Body of sprout				Papillae (tip)	
	Terminal (tip)	Lateral		Young			Old (any part)		
		Tip	Base	Top	Middle	Base			
Sprouts when young uncolored except sometimes at base:									
Green Mountain	0	0	0	0	0	0	0	0	
Norkota	0	0	0	0	0	0	0	0	
Sequoia	0	0	0	0	0	0	0	0	
White Gold	0	0	0	0	0	0	0	0	
Burbank	0	0	0	0	0	0	+, 0	0	
Russet Burbank	0	0	0	0	0	0	+, 0	0	
Early Michigan	0	0	0	0	0	0	+	0	
Charles Downing	0	0	0	0	0	0, +	+, 0	0	
Sprouts reddish in some part:									
White Rose	+	+, 0	0	0	0	0	+	+, 0	In old sprouts color mostly in papillae.
Earlaine	+, 0	0	0	0	0	+, 0	+	0	
Chippewa	+	0	0	0	0	0	+, 0	0	Sprouts somewhat conical.
Katahdin	++	+, 0	0	0	0	0	0	0	
Houma	++	+, 0	0	0	0	+, 0	+	0	
Sebago	++	+, 0	0	0	0	0	+, 0	0	
Mesaba	++	+	0	0	0	0	0	0	
President	++	+, 0	0	0	0	0	++	+, 0	On white areas of old sprouts papillae colored.
Up-to-Date	++	+, 0	0	0	0	0	+, 0	0	
Irish Cobbler	++	+	0	0	0	0	+, 0	0	
Nittany Cobbler	++	+	0	0	0	0	+, 0	0	
Late Cobbler	++	+	0	0	0	0	+, 0	0	
Sprouts purplish in some part:									
Rural New Yorker No. 2.	+++	+++	0	0	0	0	0	0	Color of leaf scales "anthracene violet."
Russet Rural	+++	+++	0	0	0	0	0	0	Do.
Pennigan	+++	+++	0	0	0	0	0	0	Do.

TUBERS REDDISH, SELF-COLORED [1] [2]

Sprout group and variety	Terminal (tip)	Lateral tip	Lateral base	Young top	Young middle	Young base	Old (any part)	Papillae (tip)	Notes
Sprouts reddish in some part:									
Brown Beauty [1]	0	0	++	+	+	+	+	++	Color near "vinaceous."
Dakota Red	0	0	0	0	+	++	+++	0	Color "deep vinaceous."
Harmony Beauty	0, +	0	0	0	++	++	+++	+, 0	Color "daphne pink" shading to "rosolane purple" at base.
Spaulding Rose	+	0	0	0	++	++	+++	0	Color near "rosolane purple."
Early Rose	0, +	0	0	0	0	++	++	+, 0	Color "persian lilac" to "daphne pink."
Early Ohio	++	+	0	+	+++	+++	+++	0	Color near "rosolane purple" to "Indian lake."
Garnet Chili	++	++	+	0	+++	+++	+++	+	Color "deep hellebore red."
Triumph	++	++	++	0	+	++	+++	++	Color "magenta" to "dull magenta purple."
Pontiac	++	++	++	0	+	++	+++	++	Color "rosolane purple" to "Schoenfeld's purple."
Perfect Peachblow	++	+	++	0, +	++	+++	+++	+, ++	Color near "rosolane purple" to "Indian lake."
Red McClure	++	++	+++	0, +	+++	+++	+++	++	Color near "Indian lake."
Red Warba [2]	+	+	++	0	0, +	++	++	+, 0	Color "rosolane purple" to "magenta."

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[1] In Brown Beauty the tuber color fades to white in storage.
[2] Tubers with small patches of white occasionally may be found in Red Warba.

TABLE 1.—*Descriptions of sprouts of 39 American varieties of potato developed in the dark*—Continued

TUBERS REDDISH, PARTI-COLORED

Sprout group and variety	Color intensity in—								Notes
	Leaf scales			Body of sprout				Papillae (tip)	
	Terminal (tip)	Lateral		Young			Old (any part)		
		Tip	Base	Top	Middle	Base			
Sprouts reddish in some part:									
Quick Lunch	++	++	++	0	+	++	+++	++	Color "magenta" to "dull magenta purple."
Warba	+	+	++	0	0, +	+	++	+, 0	Color "liseran purple" to "magenta."
McCormick	+	+	+	0	0	+	++	+	Color between "pale rosolane purple" and "light rosolane purple."
TUBERS PURPLISH									
Sprouts purplish in some part:									
Blue Victor	0, +	0, +	+	0	0, +	++	++	0	Color between "purplish vinaceous" and "dull Indian purple."

the base of the sprouts. In the young sprouts of all varieties the surface is densely covered with minute papillae that later form the lenticels of the stem. These may or may not be colored, according to the variety.

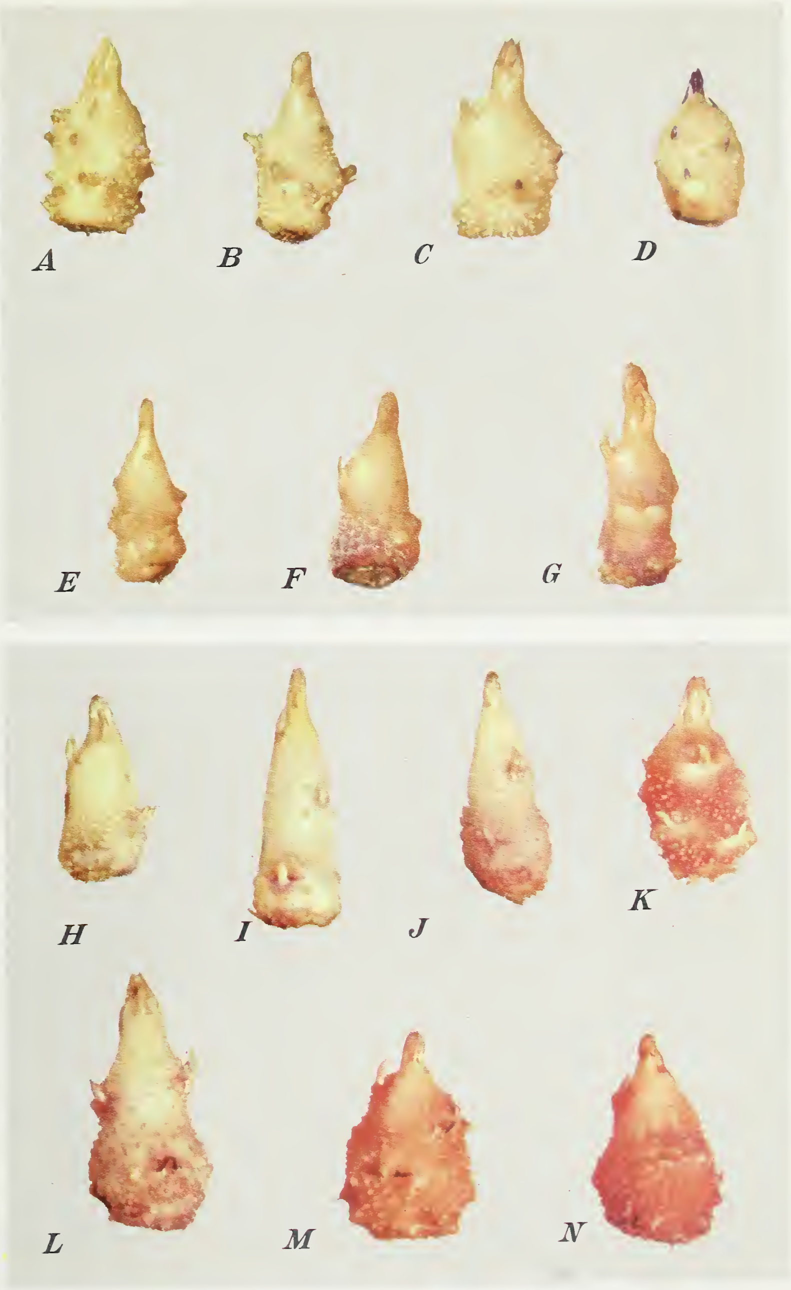
The most definite color distinctions in the terminal and lateral leaf scales may be seen when the sprouts are 6 to 8 mm. (4/16 to 5/16 inch) in length. A second reading should be taken when the sprouts have reached 19 to 25 mm. (3/4 to 1 inch) to determine the color present in the base of the sprouts, which in some varieties is not developed until after it is well defined in other parts of the sprout. In sprouts developed in the dark these colors were found to be expressed satisfactorily at a constant temperature of 78° F. and at a relatively high humidity.

When the sprouts are developed in diffused light at ordinary laboratory or living-room temperatures, certain varietal characteristics may be seen (pl. 5). Chlorophyll is formed so that the sprouts may be either green or green with the addition of reddish or purplish anthocyanin pigments in well-defined areas.

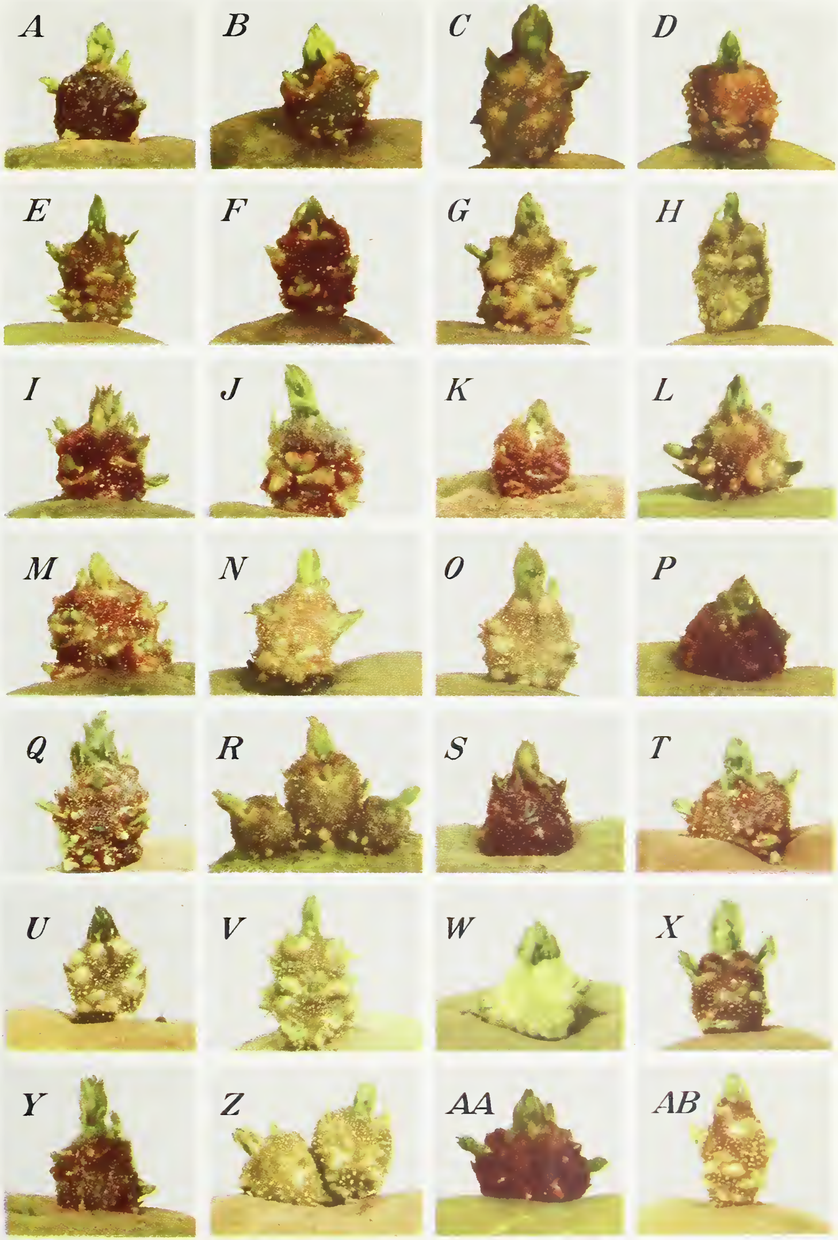
Some varietal differences are presented in the relative rapidity of development of the sprouts. Also the sprouts of different varieties assume characteristic shapes, which most commonly are ovoid, globose, or cylindrical. The tips of the terminal leaf scales may be open or closed.

In general, it may be said that the sprout characters are more constant and therefore more reliable than the characters found in the growing plants. They are, however, rather few in number, so that in some instances several varieties possessing the same sprout characters can be differentiated only by employing additional characters found in the tubers or foliage.

Detailed descriptions of the sprouts when developed in darkness and in diffuse light are given in tables 1 and 2, respectively.



Potato sprouts developed in darkness: *A*, Green Mountain; *B*, Katahdin; *C*, Irish Cobbler; *D*, Rural New Yorker No. 2; *E*, Brown Beauty; *F*, Early Rose; *G*, Spaulding Rose; *H*, Blue Victor; *I*, Warba; *J*, Garnet Chili; *K*, Early Ohio; *L*, Triumph; *M*, Perfect Peachblow; *N*, Red McClure.



Potato sprouts developed in diffuse light: *A*, Blue Victor; *B*, Brown Beauty; *C*, Burbank; *D*, Charles Downing; *E*, Chippewa; *F*, Dakota Red; *G*, Earlaine; *H*, Early Michigan; *I*, Early Ohio; *J*, Early Rose; *K*, Garnet Chili; *L*, Houma; *M*, Irish Cobbler; *N*, Katahdin; *O*, Mesaba; *P*, Perfect Peachblow; *Q*, Pontiac; *R*, President; *S*, Red McClure; *T*, Red Warba; *U*, Rural New Yorker No. 2; *V*, Sebago; *W*, Sequoia; *X*, Spaulding Rose; *Y*, Triumph; *Z*, Up-to-Date; *AA*, Warba; *AB*, White Rose.

KEY TO 39 AMERICAN VARIETIES[3]

A. FLOWERS WHITE (EXCEPT FOR FAINT TINGE OF COLOR IN NORKOTA AT EARLY STAGE).

B. Tubers With Anthocyanin Pigment in Skin (Pink, Red, or Purple).

C. Tubers pink or red, not heart-shaped; pigmentation present in leaves in upper part of plant, usually occurring in petioles, midribs, and petiolules.

D. Wings prominently developed and waved, particularly in upper third of stem. **Spaulding Rose** (p. 40).

DD. Wings present but not prominently developed in any part of stem, mostly straight.

E. Calyx lobes long (8–10 mm.); mostly linear (2 mm. wide) or sometimes foliaceous. **Early Rose** (p. 24).

EE. Calyx lobes short to medium (4–7 mm.); awl-shaped.

F. Peduncles appearing to arise from leaf petioles; secondary leaflets numerous. Tuber color uniformly distributed. **Harmony Beauty** (p. 26).

FF. Peduncles generally inserted in axil of leaf petioles and main stem; secondary leaflets few to medium in number. Tuber color lighter at base than at apex. **Early Ohio** (p. 23).

CC. Tubers purple, frequently with creamy-white splashes, ovate to heart-shaped; pigmentation present in upper leaves but only at junction of midrib and petiolules. **Blue Victor** (p. 18).

BB. Tubers Without Anthocyanin Pigment in Skin (White or Russet Except in Brown Beauty at Time of Harvest).

C. Stipules of lowest peduncle very large, leaflike, generally not clasping the peduncle. **Earlaine** (p. 22).

CC. Stipules of lowest peduncle usually medium in size, scimitar-shaped, either clasping peduncle or open.

D. Stems zigzag, bent at nodes; length of terminal leaflets more than 1½ times width. Tubers flesh-colored at time of harvest, fading to white in storage. **Brown Beauty** (p. 19).

DD. Stems not zigzag; length of terminal leaflets not more than 1½ times width. Tubers not flesh-colored at any time.

E. Calyx lobes long (8–10 mm.); mostly linear (2 mm. wide) or rarely foliaceous. (In late-blooming upper inflorescences the awl-shaped type of calyx lobes sometimes predominating.) **Early Michigan** (p. 23).

EE. Calyx lobes short to medium (4–7 mm.); awl-shaped.

F. Base of terminal leaflets generally slightly decurrent, rarely lobed.

G. Pigmentation rarely present in leaves; wings slightly waved; anthers mostly orange yellow. Tubers large, long-elliptical, usually irregular. **White Rose** (p. 43).

GG. Pigmentation present at junction of midrib and petiolules (usually fading after blooming); wings straight; anthers lemon yellow to greenish yellow. Tubers medium in size and length, oblong to ovate, regular. **Charles Downing** (p. 20).

FF. Base of terminal leaflets generally truncate or slightly lobed.

G. Pigmentation generally present in upper leaves but only at junction of midrib and petiolules (sometimes obscure after blooming).

H. Stipules of lowest peduncle generally parallel or divergent; leafy bracts sometimes present on inflorescence. Tubers round. **Houma** (p. 27).

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[3] Based on plant, flower, and tuber characters.

HH. Stipules of lowest peduncle clasping, frequently overlapping; leafy bracts rarely present on inflorescence. Tubers long.

I. Tubers white. **Burbank** (p. 19).

II. Tubers russet. **Russet Burbank** (p. 37).

GG. Pigmentation absent in leaves and rarely present in stems.

H. Peduncles generally inserted on main stem or in axils of main stem and leaf petioles; flowers with faint-pinkish tinge immediately after opening, soon fading to white. **Norkota** (p. 31).

HH. Peduncles appearing to arise from leaf petioles; flowers white at all stages.

I. Base of terminal leaflets rounded, usually slightly lobed; anthers generally lemon yellow; maturity very late. **Sequoia** (p. 39).

II. Base of terminal leaflets narrowed, truncate; anthers generally orange yellow; maturity early or late.

J. Wings generally prominently waved, double in midsection of stem; plants becoming decumbent after blooming; maturity early. **White Gold** (p. 42).

JJ. Wings slightly waved, rarely double; plants spreading after blooming; maturity late. **Green Mountain** (p. 25).

AA. FLOWERS COLORED.

B. Flowers With Reddish Pigment.

C. Tubers red or partly red.

D. Junction of midrib and petiolules, or sometimes the upper surface of the entire midrib, distinctly pigmented.

E. Cork ring of pedicels not pigmented.

F. Upper surface of midribs pigmented along entire length, especially in young leaves; wings very prominently developed in midsection of stem, generally waved. Tubers, particularly the largest, elongated, self-colored; eyes shallow. **Dakota Red** (p. 21).

FF. Midribs pigmented only at intersection with the petiolules; wings not prominently developed, uniform throughout plant, generally straight. Tubers not elongated, flesh-colored to light pink with reddish splashes and red eyes; eyes deep. **McCormick** (p. 29).

EE. Cork ring of pedicels distinctly pigmented.

F. Pigmentation of stem coarsely mottled, generally most conspicuous at nodes, particularly at base of branches from the main stem; corolla self-colored except for flecks of white on tips of lobes.

G. Tubers reddish pink. **Perfect Peachblow** (p. 32).

GG. Tubers red. **Red McClure** (p. 35).

FF. Pigmentation of stem uniform or finely mottled, usually distributed over entire stem; corolla self-colored or with tips of lobes entirely white.

G. Foliage in upper part of plant dense; base of calyx distinctly colored; wings mostly straight.

H. Tips of corolla lobes not white; base of terminal leaflets narrowed, not lobed; wings frequently but not conspicuously double.

I. Tubers red, self-colored. **Triumph** (p. 40).

II. Tubers creamy white with splashes of red and red eyes. **Quick Lunch** (p. 34).

HH. Tips of corolla lobes diminishing in intensity of color to nearly white at apex; base of terminal leaflets slightly but distinctly lobed, somewhat heart-shaped; wings conspicuously double. **Pontiac** (p. 33).

GG. Foliage in upper part of plant sparse; base of calyx green; wings waved in midsection of stem. **Garnet Chili** (p. 25).

DD. Little or no pigmentation in any part of leaf. (A trace of color sometimes seen in axils of midrib and petiolules in Red Warba.)

E. Tubers creamy white, with red eyes frequently surrounded by reddish areas. **Warba** (p. 42).

EE. Tubers entirely red except for occasional small white areas. **Red Warba** (p. 35).

CC. Tubers white or russet.

D. Base of terminal leaflets decurrent; midribs glabrous or nearly so; peduncles slender, sometimes bent. **President** (p. 33).

DD. Base of terminal leaflets not decurrent; midribs pubescent; peduncles stout, usually straight.

E. Lobes at base of terminal and lateral leaflets raised, sometimes overlapping; lower leaves excessively long (30–38 cm.). **Up-to-Date** (p. 41).

EE. Lobes at base of terminal and lateral leaflets, if present, rarely raised; lower leaves not excessively long.

F. Terminal leaflets frequently acutely lobed on one margin or sometimes on both, giving the appearance of a maple leaf; lower half of terminal leaflets somewhat truncate, wedge-shaped; calyx lobes medium in length, slender, recurved. **Chippewa** (p. 21).

FF. Terminal leaflets not lobed on margins; lower half of terminal leaflets more or less rounded, slightly or distinctly lobed; calyx lobes short or medium in length, not generally recurved.

G. No pigmentation in any part of plant except corolla; leaflets very thick, much ruffled, densely pubescent. **Mesaba** (p. 30).

GG. Some pigmentation in different parts of the plant, particularly in stems; leaflets thin or medium in thickness, scantily pubescent.

H. Little pigmentation in stems; wings prominently developed on upper third of stem; base of terminal leaflets heart-shaped. **Katahdin** (p. 28).

HH. Pigmentation generally present in most internodes; wings medium prominent along the entire length of stem; base of terminal leaflets slightly lobed.

I. Wings not generally double in lower part of stem. Tubers longer than broad. **Sebago** (p. 38).

II. Wings generally double on one or more angles of lower part of stem. Tubers not longer than broad.

J. Plants maturing early.
Nittany Cobbler (p. 31).
Irish Cobbler (p. 27).

JJ. Plants maturing late.
Late Cobbler (p. 29).

BB. FLOWERS WITH PURPLISH PIGMENT.

C. Tubers white. **Rural New Yorker No. 2** (p. 36); **Pennigan** (p. 32).

CC. Tubers russet. **Russet Rural** (p. 38).

TABLE 2.—*Descriptions of sprouts of 39 American varieties of potato developed in diffuse light*

[0, not colored (absence of reddish or purplish anthocyanin pigments) or not hairy; +, slightly colored or slightly hairy; ++, intermediately colored or intermediately hairy; +++, deeply colored or very hairy; 0, +, from not to slightly colored or hairy; +, 0, from slightly to not colored or hairy; quoted colors from Ridgway (*31*)]

Tuber and sprout groups	Variety	Color intensity in—			Body of sprout		Notes
		Leaf scales		Papillae (tip)	Color	Density of hairs	
		Terminal (tip)	Lateral (base)				
White or russet tubers:							
"Greenish - yellow" sprouts.	Green Mountain	0	0	0	"Light chalcedony yellow" at top of young sprouts, through "baryta yellow." Yellow to "sulphine yellow" in middle. "Old gold" in base of old sprouts.	+	
	Norkota	0	0	0	do	++	
	Sequoia	0	0	0	do	+	
	White Gold	0	0	0	do	+	
Olive "vinaceous" sprouts.	Early Michigan	0	0	0	Young sprouts with touch of "chalcedony yellow" at top passing to "vinaceous-buff" and "avellaneous," more or less intermingled.	++	
	Burbank	0, +	0	+, 0	Young sprouts "olive-buff," tinged with "vinaceous-buff," with age becoming "dark olive-buff" flaked with "vinaceous."	++	Terminal leaf scales distinctly hairy.
	Russet Burbank	0, +	0	+, 0	do	++	Do.
"Vinaceous" sprouts	Earlaine	0, +	0	0	Young sprouts "olive-buff" to "vinaceous-fawn"; older deepening to "vinaceous-brown."	++	Terminal leaf scales short.
	Mesaba	+	+, 0	0	Not essentially different from Earlaine	+	
	Charles Downing	0	0	0	do	+	
Dull-purplish sprouts	Sebago	+	0	0	Youngest sprouts about "cream color," soon tinged "light purplish vinaceous," becoming "livid brown" or "deep livid brown" with age.	++	Color in sprouts most pronounced at top.
	Katahdin	+	+, 0	0	Youngest sprouts "cream color" scarcely tinged with light green. Older sprouts "dark olive-buff" at base but pass upward to their strongest color near the top where they reach "dark livid brown."	++	
	Chippewa	0, +	+, 0	0	In young sprouts "olive-buff" root protuberances emerge conspicuously from a ground of "light russet-vinaceous." Later protuberances more greenish from a ground of "vinaceous-brown."	++	
	Houma	+	0	0	Young sprouts "light purplish vinaceous"; later "light perilla purple," darkening to "deep livid purple."	+++	Sprouts densely hairy.

Bright reddish-purple sprouts.	Irish Cobbler	+	0	0	Color of both young and old sprouts "perilla purple" with very slight variation.	+	
	Nittany Cobbler	+	0	0	do	+	
	Late Cobbler	+	0	0	do	+	
	White Rose	+	0	0, +	"Perilla purple" with little variation	++	
Purplish-brown sprouts	President	+	0	+, 0	"Sorghum brown" to "dark vinaceous-brown"	0	Apical sprouts in clusters.
"Brownish-drab" sprouts.	Up-to-Date	0, +	+, 0	0	A little browner than "orange-citrine," adding some purple with age.	+	Tips of terminal leaf scales frequently open.
Dark-drab sprouts	Rural New Yorker No. 2	+++	++	0	Youngest sprouts about "sulphur yellow," quickly taking on slight tinging of green and purple; later almost solid "dark purple-drab," becoming "dark grayish brown" in old sprouts.	+	Tips of leaf scales "dark anthracene violet."
	Russet Rural	+++	++	0	do	+	Do.
	Pennigan	+++	++	0	do	+	Do.
Reddish, self-colored tubers: [1] [2]							
Dull purplish-green sprouts.	Brown Beauty [1]	0	++	++	Young sprouts "brownish vinaceous," becoming "deep brownish vinaceous," especially the root protuberances.	++	
Bright reddish-purple sprouts.	Garnet Chili	++	+++	+	"Indian lake" to "dark maroon purple" in old sprouts. Color very uniformly distributed.	0, +	Papillae inconspicuous; sprout columnar.
	Dakota Red	0, +	0	0	"Indian lake" to "dark maroon purple"	0	Conspicuous white papillae.
	Harmony Beauty	0, +	+, 0	0	Youngest sprouts near "dull magenta purple" becoming "perilla purple" to "dull dusky purple" with age.	++	
	Spaulding Rose	0, +	0	0	Mostly "perilla purple" but sometimes lighter to "Indian lake," later becoming "Indian purple."	+	Terminal leaf scales long.
	Early Rose	0, +	0	0	Sprouts "perilla purple" with root protuberances nearly white.	+++	Terminal leaf scales short.
	Early Ohio	0, +	++	++	Mainly "raisin purple"	+	Sprouts very slow in starting.
	Triumph	0, +	+++	+++	do	++	
	Pontiac	+	+++	+++	"Raisin purple" throughout	++	
	Perfect Peachblow	+	+++	++	"Dark perilla purple"	++	Base of terminal leaf scales deeply colored.
	Red McClure	++	+++	++	do	++	Do.
	Red Warba [2]	0, +	+++	++	"Raisin purple" somewhat masked by bluish hairs.	++	
Reddish, parti-colored tubers:							
Bright reddish-purple sprouts.	Quick Lunch	++	+++	++	Young sprouts "Indian lake" to near "raisin purple" in old sprouts.	++	
	Warba	0, +	+++	+++	"Raisin purple" blurred over with bluish gray by fine hairs.	++	
	McCormick	+		+, 0			Densely hairy above.
Purplish, parti-colored tubers:							
"Dark-violet" sprouts	Blue Victor	0	+	+	"Dark naphthalene violet"	+++	

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[1] In Brown Beauty the tuber color fades to white in storage.
[2] Tubers with small patches of white occasionally may be found in Red Warba.

DESCRIPTIONS OF 39 AMERICAN VARIETIES[4]

Complete descriptions of 39 varieties grown in comparative tests in Aroostook County, Maine, are given. In most instances the varieties are listed under their earliest known name. A few exceptions are considered advisable to conform with the extensive usage of other names. For example, the variety designated as Harmony Beauty has been known by that name for many years, and it is doubtful that it would be recognized by any present-day grower or dealer by Mitchell, the original name under which it appeared over 60 years ago. Another example is that of the variety that is generally known as President throughout the United States, Canada, and Great Britain. In recent years under this name it has entered extensively into potato-breeding and other research programs, and much confusion regarding its identity would follow the use of Paul Krüger, its earlier designation. For similar reasons, White Rose is used rather than American Giant and Brown Beauty rather than Prolific. In such cases the earliest names are listed with other commonly used synonyms. No complete compilation of all synonyms or incorrect names was made.

BLUE VICTOR

ORIGIN

The origin of Blue Victor is not definitely known. It is apparently a sport of Peerless, as types identical with the latter can be obtained from Blue Victor by using a special technique in removing external layers of tissue from the eyes before they are planted.

DESCRIPTION

PLANTS.—Medium in size, spreading; stems medium in thickness, prominently angled; nodes slightly swollen, green; internodes slightly pigmented, very faintly mottled, sometimes a little colored in axils, reddish; wings straight, inconspicuous, green; stipules medium to small, green, scantily pubescent; leaves medium in length and breadth, open type, green; midribs slightly pigmented at junction with petiolules, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, elliptical-ovate, four pairs; petiolules green; secondary leaflets medium in number to few, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence little branched; leafy bracts none; peduncles short, green, scantily pubescent; pedicels short, green, scantily pubescent.

FLOWERS.—Buds usually abscising before opening or dropping when partly open, few persisting; corolla medium in size, white; anthers lemon or light orange yellow.

TUBERS.—Medium in size, ovate to heart-shaped, flattened, heavily shouldered and broader at the stem end; skin flaked to somewhat netted, parti-colored, purple ("madder violet") with few, many, or no creamy-white splashes, particularly around the eyes; eyes rather shallow, sometimes protuberant, in offtype specimens inclined to be deep with heavy eyebrows; eyebrows long, curved, prominent; flesh white.

NOTES

Blue Victor is of little commercial importance and of no breeding value. It is reported to be grown on a few farms in Pennsylvania and Ohio for local consumption. It is susceptible to virus diseases and wart.

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[4] Descriptions of sprouts developed in darkness and in diffuse light, which appear in tables 1 and 2, respectively, are not mentioned under tubers. In commercial trade the tubers described herein as "chamois," cream, creamy white, dark creamy buff, and "ivory yellow" are classified as white. Throughout the descriptions the quoted colors are from Ridgway (*31*).

BROWN BEAUTY

SYNONYMS

Bresee's No. 2, Barkley's Prolific, and Prolific.

ORIGIN

The variety now sold commercially under the name Brown Beauty was originated by Albert Bresee, Hubbardton, Vt., in 1861. It was claimed to be a seedling of Garnet Chili from the same seed ball as Early Rose and was introduced by B. K. Bliss & Sons in 1869.

DESCRIPTION

PLANTS.—Large, spreading to decumbent; stems medium in thickness, somewhat zigzag, bent at nodes, prominently angled; nodes much swollen, slightly pigmented or green; internodes slightly pigmented or green; wings medium to slightly waved, green; stipules large below, small above; those of lowest peduncle usually medium in size, scimitar-shaped, green, not pubescent; leaves medium in length, narrow, open type, green; midribs green or sometimes with trace of color in axil of midribs and petiolules, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, narrowly ovate, three or four pairs; terminal leaflets slightly decurrent; petiolules green; secondary leaflets in two positions—on midrib between pairs of primary leaflets and on petiolules; tertiary leaflets few, small; inflorescence little branched; leafy bracts none; peduncles short, scantily pubescent; pedicels green, scantily pubescent.

FLOWERS.—Calyx lobes short, green, scantily pubescent; corolla medium in size, white; anthers greenish yellow; pollen scant; anther column cone-shaped; style straight, nearly twice length of anthers; stigma obovoid to globose, not lobed, green.

TUBERS.—Medium in size, oblong, flattened; skin smooth, flesh-colored at time of harvest, fading to white in storage, classified as white by the commercial trade; eyes shallow, pink; eyebrows medium in length, curved, not prominent; flesh white.

NOTES

In 1944, 5,281 bushels of the Brown Beauty variety was certified in Colorado. This variety is of no commercial importance except in Colorado; it is the leading variety in the San Luis Valley district. It is very susceptible to wart.

BURBANK

SYNONYM

Burbank's Seedling.

ORIGIN

Burbank was originated by Luther Burbank, and it was introduced by J. J. H. Gregory in 1876. It was claimed to be a seedling of Early Rose.

DESCRIPTION

PLANTS.—Medium in size, spreading; stems thick to medium, prominently angled; nodes slightly swollen, more pronounced than in most other varieties, green; internodes slightly pigmented, mottled, reddish purple; wings slightly waved to straight, green; stipules small, green, not pubescent; leaves long, medium in breadth and type, green; midribs slightly pigmented at junction with petiolules, scantily pubescent; petioles sometimes pigmented at base, scantily pubescent; primary leaflets medium to large, elliptical-ovate, four or five pairs; petiolules little pigmented; secondary leaflets few, in two positions—on midrib between pairs of primary leaflets and at junction of midrib and petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts rarely present; peduncles long, generally slender, green, scantily pubescent; pedicels short to medium, much pigmented, scantily pubescent.

Flowers.—Calyx lobes medium in length, awl-shaped, green, scantily pubescent; corolla medium in size, white (pl. 1, *D*); anthers lemon yellow to greenish yellow; pollen scant, of poor quality; style curved; stigma flattened globose, bilobed, green.

Tubers.—Long, cylindrical or slightly flattened; skin smooth, white; eyes numerous and well distributed, shallow, sometimes protuberant; eyebrows short, curved, inconspicuous; flesh white.

NOTES

In 1944, about 213,100 bushels of Burbank was certified in California, Oregon, and Washington. This variety, which is subject to second growth under adverse growing conditions, is especially adapted to irrigated districts where a uniform supply of moisture can be maintained. From the breeding standpoint it should contribute high dry-matter content to its progeny, but it is difficult to use as a parent because of bud abscission. It is susceptible to virus diseases.

Charles Downing

SYNONYMS

Idaho Rural and Earliest of All.

ORIGIN

Charles Downing was originated by O. H. Alexander, Charlotte, Vt., and it was introduced by Frank Ford & Sons in 1887. Its parentage is not known.

DESCRIPTION

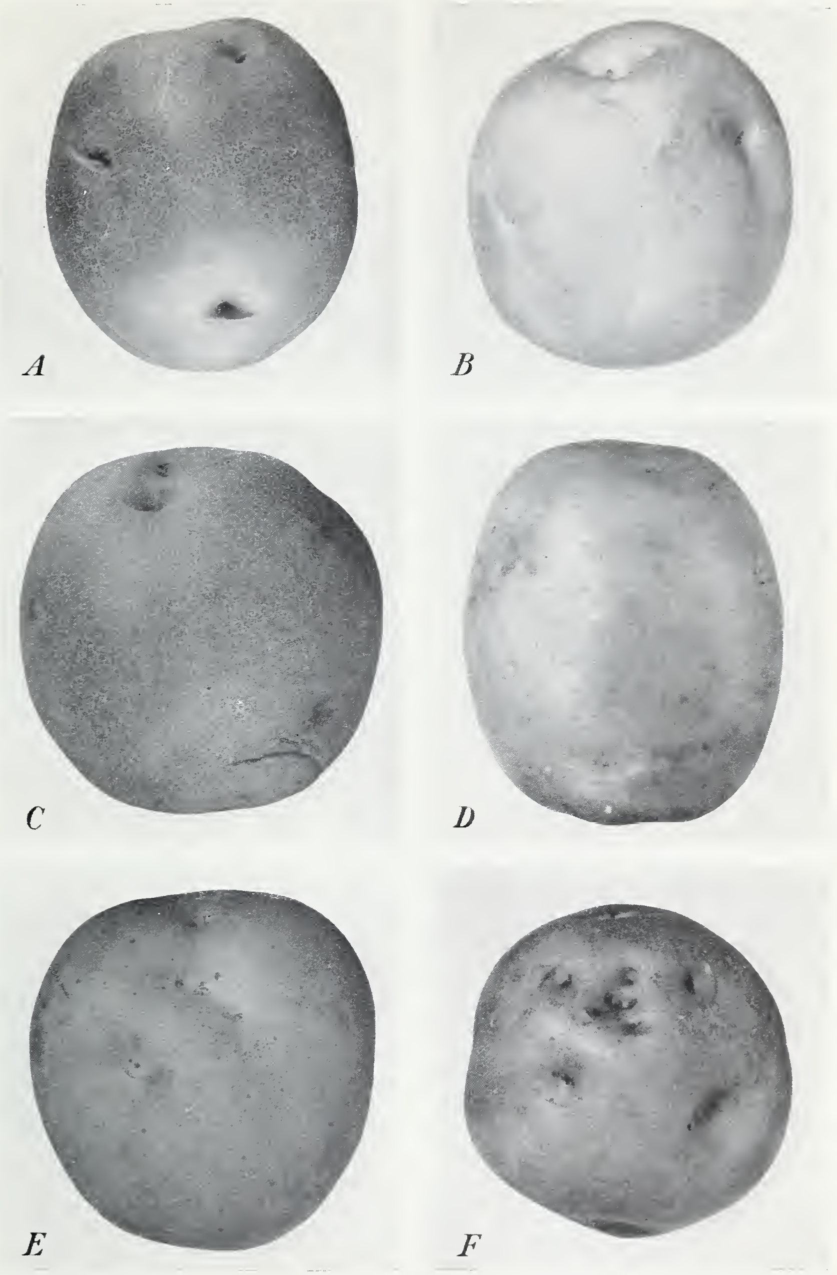
Plants.—Large, spreading; stems medium in thickness, angles medium in prominence; nodes slightly swollen, slightly pigmented or green; internodes slightly pigmented or green, mottled, reddish purple; wings straight, green; stipules medium in size, green, not pubescent; leaves medium in length, breadth, and type, green; midribs medium pigmented at junction with petiolules, scantily pubescent; petioles frequently with color at base, scantily pubescent; primary leaflets medium in size, ovate, four pairs; petiolules slightly pigmented at base; secondary leaflets medium in number to few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few; inflorescence much branched; leafy bracts medium in number; peduncles long, green, pubescence short, fine; pedicels medium to long, green, scantily pubescent.

Flowers.—Calyx lobes medium in length, awl-shaped, green, scantily pubescent; corolla large, white; anthers lemon yellow to greenish yellow; pollen scant, of poor quality; style straight; stigma globose, multilobed, green.

Tubers.—Medium in size, oblong to ovate; skin smooth, white; eyes medium in depth; eyebrows long, curved, medium prominent; flesh white (pl. 6, *A*).

NOTES

In 1944, approximately 600 bushels of this variety under the name Earliest of All was certified in Oregon and 683 bushels of Idaho Rural was certified in Idaho. Charles Downing carries one of the genetic factors for red tuber color, which is complementary to the one carried by Katahdin. It is immune from wart.



Potato tubers: *A*, Charles Downing; *B*, Mesaba; *C*, Perfect Peachblow; *D*, Chippewa; *E*, Sequoia; *F*, Pontiac.

CHIPPEWA

ORIGIN

Chippewa, which was originated by the United States Department of Agriculture from a cross between the unnamed U. S. D. A. seedlings Nos. 40568 and 24642, was first grown in 1923 at Presque Isle, Maine (*4*). It was tested under the national potato-breeding program and released to growers in 1933.

DESCRIPTION

PLANTS.—Medium in size, spreading; stems thick to medium, prominently angled; nodes slightly swollen, green; internodes medium to slightly pigmented, faintly mottled or sometimes continuous, reddish purple; wings slightly waved or straight, medium in size, green; stipules medium in size, green, not pubescent; leaves long, broad, medium in type, green; midribs green or sometimes with trace of color in young leaves, scantily pubescent; petioles green, scantily pubescent; primary leaflets large, ovate, four pairs; terminal leaflets frequently acutely lobed on one margin or sometimes on both, giving the appearance of a maple leaf, base partly truncate; petiolules green; secondary leaflets medium to few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few or none; inflorescence medium branched; leafy bracts none; peduncles medium in length, green, abundantly pubescent, particularly on branches; pedicels long to medium, green, abundantly pubescent.

FLOWERS.—Calyx lobes medium to long, awl-shaped, slender, recurved, slightly pigmented or green, scantily pubescent; base of calyx slightly pigmented; corolla medium in size, "lilac" with white tips (pl. 1, *C*); anthers orange yellow; pollen scant, of poor quality; style straight; stigma flattened globose, multilobed, green.

TUBERS.—Large, elliptical to oblong, medium in thickness; skin smooth, dark creamy buff; eyes shallow, same color as skin; eyebrows medium in length, curved, medium prominent; flesh white (pl. 6, *D*).

NOTES

Chippewa is rather widely distributed, reaching its greatest importance in Maine, Indiana, Michigan, Minnesota, New Jersey, New York, North Dakota, and Wisconsin. Approximately 1,826,300 bushels of certified seed was grown in 1944. This variety is especially adapted to the muck soils of Indiana and New York, where large crops of good quality are produced; but in most other sections its table quality is poor. Under adverse conditions its leaves roll, making roguing difficult. It is used to some extent for breeding. Its outstanding characteristics are early development of tubers of good shape, high yield, resistance to mild mosaic, and freedom from net necrosis. It is susceptible to wart.

DAKOTA RED

SYNONYM

Jersey Red Skin.

ORIGIN

A variety bearing the name Dakota Red was originated by O. H. Alexander, Charlotte, Vt., from Pringle's hybridized seed, and in 1883 it was introduced by Hiram Sibley & Co. It is not known whether this is the Dakota Red grown at the present time.

DESCRIPTION

Plants.—Large, erect, very late; stems thick, prominently angled; nodes slightly swollen, much pigmented, dark reddish purple; internodes much pigmented, mostly finely mottled, dark reddish purple; wings generally waved, very prominent, particularly in midsection of stem, green; stipules medium in size, green, not pubescent; leaves very long, medium in breadth and type, dark green; midribs much pigmented entire length in new growth, scantily pubescent; petioles pigmented, scantily pubescent; primary leaflets large to medium in size, ovate, five or six pairs; petiolules much pigmented in upper leaves; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence medium branched; leafy bracts none; peduncles medium to short, little pigmented, scantily pubescent; pedicels medium in length, little pigmented, slightly pigmented below cork ring, not pigmented above, scantily pubescent.

Flowers.—Calyx lobes medium in length, awl-shaped, green, scantily pubescent; corolla medium in size (diameter 30 mm.), violet ("pale hortense violet") with white tips (pl. 3, *B*); anthers orange yellow to lemon yellow; pollen scant; style straight; stigma globose, very obscurely bilobed or trilobed.

Tubers.—Medium in size, elongated to oblong-ovate, flattened; skin smooth, or often flaked, self-colored, red; eyes shallow, red; eyebrows medium in length, curved, medium prominent; flesh white.

NOTES

Dakota Red is of some commercial importance as a second crop in Delaware, New Jersey, and Maryland, because of its tolerance to hot weather. In 1944, 3,303 bushels was certified in Maryland and New Jersey. It is late and very vigorous and has possibilities of value for breeding.

Earlaine

ORIGIN

Earlaine, which was originated by the United States Department of Agriculture from a cross between Irish Cobbler and U. S. D. A. seedling No. 43055, was first grown in 1930 at Presque Isle, Maine (*5*). It was tested under the national potato-breeding program and released to growers in 1937.

DESCRIPTION

Plants.—Medium in size, spreading; stems thick to medium, prominently angled; nodes slightly swollen, green; internodes green, rarely with a trace of color; wings not prominent, usually straight, but sometimes slightly waved, green; stipules large to medium in size; those of lowest peduncle very large, leaflike, generally not clasping the peduncle, green, not pubescent; leaves medium in length, broad, closed type, light green; midribs green, scantily pubescent; petioles green, scantily pubescent; primary leaflets large, broadly ovate, four pairs; terminal leaflets ovate, base usually with small lobes; petiolules green; secondary leaflets few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few or none; inflorescence medium branched; leafy bracts none; peduncles long, green, scantily pubescent; pedicels medium in length, green, scantily pubescent.

Flowers.—Calyx lobes medium to short, green, scantily pubescent; base of calyx usually green; corolla medium in size, white (pl. 1, *G*); anthers orange yellow; pollen abundant, of good quality; style straight; stigma globose, multilobed.

Tubers.—Medium in size, roundish, thick; skin slightly flaked, "ivory yellow"; eyes medium in depth to shallow, of same color as skin; eyebrows short, curved, medium prominent; flesh white.

NOTES

Earlaine is of little commercial importance, but it is valuable in breeding for earliness, good tuber shape, and resistance to mild mosaic. Its table quality is fair to poor. This variety has highly fertile pollen. It is immune from mild mosaic, but susceptible to wart.

Early Michigan

ORIGIN

Early Michigan was originated by Martin Bovee, Northville, Mich., and it was introduced by H. N. Hammond in 1895.

DESCRIPTION

Plants.—Large, spreading; stems medium in thickness, prominently angled; nodes slightly swollen, green; internodes slightly pigmented, reddish purple; wings straight, green; stipules medium in size, green, not pubescent; those of lowest peduncle medium in size, scimitar-shaped; leaves long to medium, medium in breadth, open type; midribs slightly pigmented at junction with petiolules, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, narrowly ovate; petiolules slightly pigmented at base; secondary leaflets few, in one position—on midrib mostly between pairs of primary leaflets; tertiary leaflets few; inflorescence medium branched; leafy bracts few; peduncles long, little pigmented, scantily pubescent; pedicels medium in length, little pigmented, abundantly pubescent.

Flowers.—Calyx lobes long, mostly linear or rarely foliaceous, green, scantily pubescent; base of calyx densely pubescent, mostly green; corolla large to medium, white; anthers orange yellow; pollen scant; style straight; stigma flattened globose, multilobed, green.

Tubers.—Medium in size, oblong, flattened; skin smooth, white; eyes shallow, white; eyebrows medium in length, slightly curved, inconspicuous; flesh white.

NOTES

Early Michigan is of little importance commercially or for breeding purposes. Limited production is reported in New York and Oregon. This variety is susceptible to virus diseases.

Early Ohio

ORIGIN

Early Ohio was originated by Alfred Reese in 1871, and it was introduced by J. J. H. Gregory in 1875. It was claimed to be a seedling of Early Rose.

DESCRIPTION

Plants.—Medium to large, spreading; stems thick, prominently angled; nodes medium swollen, medium pigmented, reddish purple; internodes medium pigmented, finely mottled, reddish purple; wings straight, green; stipules medium in size, green, not pubescent; leaves medium in length and breadth, open type, green; midribs reddish purple, medium in intensity at junction with petiolules, scantily pubescent; petioles green or reddish purple at base, scantily pubescent; primary leaflets medium in size, narrowly ovate, four pairs; petiolules reddish purple, medium in intensity; secondary leaflets few to medium in number, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence little branched; leafy bracts none; peduncles medium in length with little color, scantily pubescent; pedicels short, green, scantily pubescent.

Flowers.—Few to medium in number, some buds dropping before opening, many dropping when partially open, few persisting; calyx lobes short, awl-shaped; corolla white; anthers light orange yellow to lemon yellow; pistils frequently protruding in buds.

Tubers.—Medium in size, round-oblong to somewhat cylindrical (largest tubers), seed and stem ends rounded; skin smooth, pink, lighter at base than at apex; lenticels conspicuous; eyes numerous, shallow to medium in depth, sometimes protuberant, pink; eyebrows short, curved, prominent; flesh white, sometimes with color in cortex (pl. 7, *B*).

NOTES

Early Ohio, an early variety, is commercially important in Minnesota, North Dakota, Iowa, and Nebraska. Approximately 238,100 bushels was certified in 1944 in Minnesota, North Dakota, and South Dakota. This variety is susceptible to virus diseases and wart.

Early Rose

ORIGIN

Early Rose, claimed to be a seedling of Garnet Chili, was originated by Albert Bresee, Hubbardton, Vt., in 1861. It was introduced in a limited way in 1867 by D. S. Heffron, Utica, N. Y., and to the public in 1868 by B. K. Bliss & Sons.

DESCRIPTION

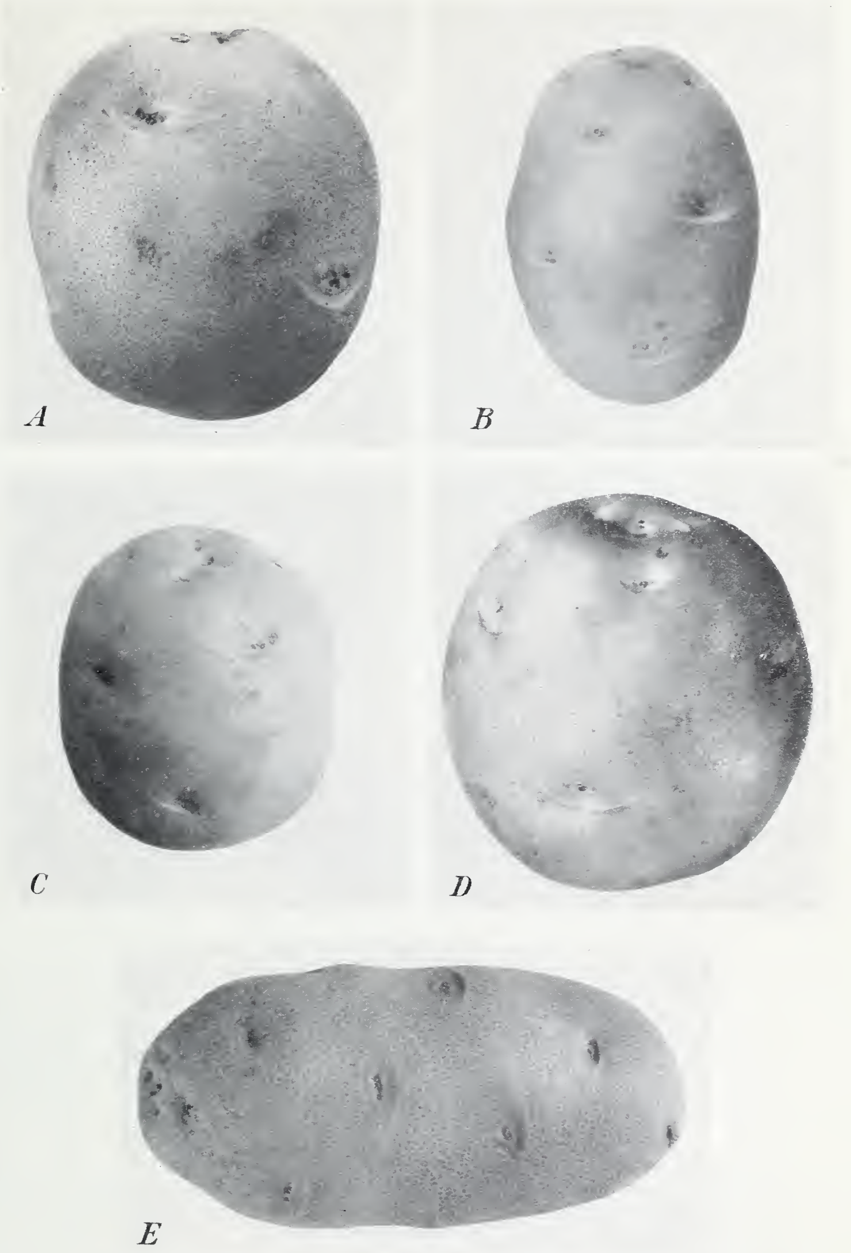
Plants.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, pigmentation medium, reddish purple; internodes medium pigmented, mottled, reddish purple; wings slightly waved or straight, medium prominent, green; stipules medium in size, green, not pubescent; leaves long, medium in breadth, open type, dark green; midribs slightly pigmented particularly at junction with petiolules, scantily pubescent; petioles usually pigmented at base, scantily pubescent; primary leaflets medium in size, narrowly ovate, four or five pairs; petiolule pigmentation medium; secondary leaflets few, in two positions—on midrib between pairs of primary leaflets and at junction of midrib and petiolules; tertiary leaflets few; inflorescence much branched; leafy bracts medium to few; peduncles long, little pigmented, scantily pubescent; pedicels medium in length, green, scantily pubescent.

Flowers.—Calyx lobes long, linear or foliaceous, rarely awl-shaped, green, scantily pubescent; corolla large, white (pl. 2, *C*); anthers orange yellow to lemon yellow; pollen scant, of poor quality; style straight; stigma globose, multilobed, green.

Tubers.—Medium in size, elongated or oblong, usually flattish at the center and tapering gradually toward each end, stem and seed ends rather blunt; skin smooth or sometimes flaked, self-colored, "vinaceous-pink"; eyes shallow, pink; eyebrows medium in length, slightly curved, medium prominent; flesh white, sometimes streaked with red.

NOTES

Early Rose, formerly a popular early variety, is unimportant commercially at present; production is reduced to a small acreage, chiefly in New England and Oregon, where 2,400 bushels was certified in 1944. It is susceptible to virus diseases and wart.



Potato tubers: *A*, Rural New Yorker No. 2; *B*, Early Ohio; *C*, Irish Cobbler; *D*, Katahdin; *E*, Russet Burbank.

GARNET CHILI

ORIGIN

Garnet Chili, which was originated by C. E. Goodrich, Utica, N. Y., in 1853, was introduced by him in 1857. It was claimed to be a seedling of Rough Purple Chili.

DESCRIPTION

PLANTS.—Large, tall, erect; stems medium in thickness, prominently angled; nodes slightly swollen, medium pigmented, reddish purple; internodes medium pigmented, finely mottled, reddish purple; wings slightly waved in upper part of stem and prominently waved below, green; stipules medium to small, green, not pubescent; leaves short, narrow, medium in type, green; midribs prominently pigmented at junction with petiolules, scantily pubescent; petioles green, sometimes slightly pigmented at base; primary leaflets small, three or four pairs; petiolules much pigmented at base; secondary leaflets few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets none; inflorescence medium branched; leafy bracts few; peduncles medium in length, little pigmented, scantily pubescent; pedicels medium in length below cork ring, short above cork ring, green, scantily pubescent; cork ring reddish purple.

FLOWERS.—Calyx lobes medium to short, green, scantily pubescent; corolla medium in size, reddish purple (between "pale amparo purple" and "phlox pink") with white tips (pl. 1, *E*); anthers orange yellow; pollen medium abundant; style straight; stigma globose, obscurely lobed.

TUBERS.—Medium in size, roundish to short-oblong, ends blunt; skin red, self-colored, "rosolane purple"; eyes medium in depth, "magenta"; eyebrows short, curved, inconspicuous; flesh white.

NOTES

Garnet Chili, a late variety, is of little commercial importance; production is confined to the Colma district, near San Francisco, Calif., where this variety is grown to supply the local market. Breeding experience indicates that it is of little value for that purpose. It is susceptible to wart.

GREEN MOUNTAIN

ORIGIN

Green Mountain was originated by O. H. Alexander, Charlotte, Vt., in 1878, and introduced by J. A. Everitt & Co. in 1885. It was claimed to be a seedling from a cross between Dunmore and Excelsior.

DESCRIPTION

PLANTS.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes slightly pigmented or green, reddish purple; wings slightly waved, green; stipules small, green, not pubescent; those of lowest peduncle medium to large, clasping, frequently overlapping; leaves long, medium in breadth and type, green; midribs green, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, four pairs; petiolules green; secondary leaflets medium in number, in two positions—on midrib between pairs of primary leaflets and at junction of midrib and petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts none; peduncles long, usually inserted on long leaf petioles, green, scantily pubescent; pedicels medium in length, green, abundantly pubescent.

FLOWERS.—Calyx lobes medium in length, green, scantily pubescent; corolla large to medium in size, white (pl. 3, *C*); anthers orange yellow; pollen medium abundant, of poor quality; style straight, but little longer than anthers; stigma globose, multilobed, green.

TUBERS.—Large, short-oblong to oblong, broad, flattened, ends usually blunt; skin smooth or often netted, white; eyes medium in depth, white; eyebrows medium in length, slightly curved, inconspicuous; flesh white (pl. 8, *E*).

NOTES

Green Mountain, one of the leading late-maturing varieties in the Northeastern States, is particularly adapted to the cool summer temperatures and abundant rainfall of northern New England and Long Island, N. Y., where it produces high yields of good-quality potatoes. In 1944, 4,262,427 bushels of certified seed was produced; 90 percent was grown in Maine. Green Mountain is immune from wart but susceptible to most of the other common potato diseases. Net necrosis develops extensively in storage from current-year leaf roll infection.

HARMONY BEAUTY

SYNONYM

Mitchell.

ORIGIN

Recent research regarding the early history of Harmony Beauty indicates that it was originated by Alva Mitchell, Harmony, Somerset County, Maine, about 1880, from a seed ball of unknown parentage. The seedling was first known as the Mitchell potato. Later its name was changed to Harmony Beauty.

DESCRIPTION

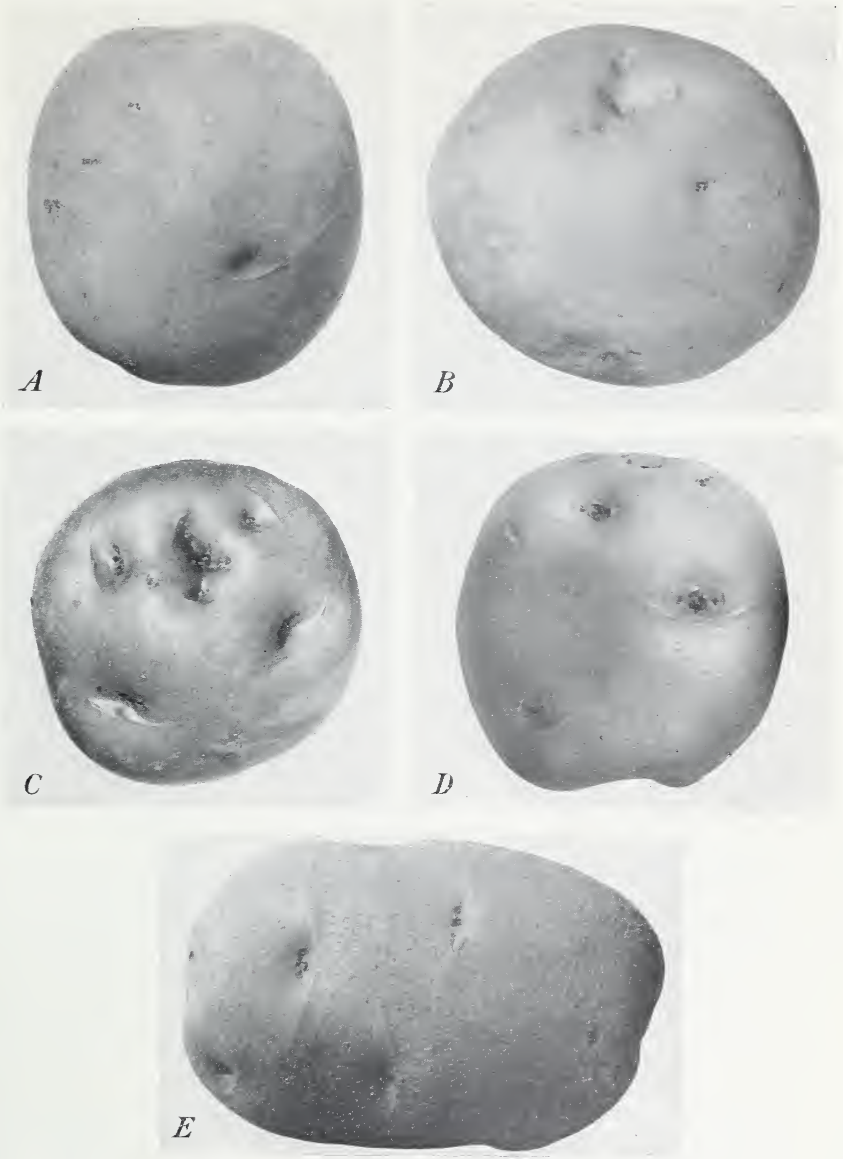
PLANTS.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, slightly pigmented, reddish purple; internodes medium pigmented, slightly mottled, reddish purple; wings straight, not prominent, green; stipules medium in size, green, not pubescent; leaves long, medium in breadth and type, dark green; midribs medium pigmented, abundantly pubescent; petioles pigmented, scantily pubescent; primary leaflets ovate, four or five pairs; petiolules long, pigmentation medium; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets many; inflorescence medium branched; leafy bracts none; peduncles medium in length, green, abundant pubescence short, fine; pedicels short, green, abundantly pubescent.

FLOWERS.—Few; buds usually abscising before opening; calyx lobes short to medium in length, awl-shaped; corolla white.

TUBERS.—Medium in size, oblong, flattened; skin flaked, self-colored, red ("coral pink"); eyes medium in depth to deep, red; eyebrows medium in length, slightly curved, medium prominent; flesh white.

NOTES

The commercial production of Harmony Beauty is limited to small areas in southern Maine, where it is grown to supply the early markets in nearby cities. This variety is susceptible to virus diseases.



Potato tubers: *A*, Sebago; *B*, Houma; *C*, Red Warba; *D*, Triumph; *E*, Green Mountain.

HOUMA

ORIGIN

Houma, which was originated by the United States Department of Agriculture from a cross between Charles Downing and Katahdin, was first grown in 1929 at Presque Isle, Maine (*6*). It was tested under the national potato-breeding program and released to growers in 1936.

DESCRIPTION

PLANTS.—Large, erect to spreading; stems thick, prominently angled; nodes not swollen, slightly pigmented or green, pigmentation frequently present in axil formed by main stem and a branch or leaf; internodes green or sometimes slightly pigmented; wings usually straight, sometimes double on one angle, green; stipules large below, small above, green, not or scantily pubescent; those of lowest peduncle mostly parallel or divergent; leaves long, broad, open to medium in type, green; midribs green or slightly pigmented at junction with petiolules, scantily pubescent; petioles green, scantily pubescent; primary leaflets large, ovate to elliptical-ovate, four pairs; petiolules green except at base; secondary leaflets medium in number, in two positions—on midrib between pairs of primary leaflets and at junction of midrib and petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts few; peduncles medium in length, green, scantily pubescent; pedicels long to medium, green, scantily pubescent.

FLOWERS.—Calyx lobes medium in length, awl-shaped, green or sometimes slightly pigmented at extreme tips; corolla large, white (pl. 2, *F*); anthers orange yellow; pollen scant, of poor quality; style straight, but little longer than the anthers; stigma globose, multilobed to bilobed, green.

TUBERS.—Large to medium in size, roundish, flattened at apex, width greater than length, medium in thickness; skin smooth or slightly flaked, "chamois"; eyes medium in depth, same color as skin; eyebrows short, curved, medium prominent; flesh white (pl. 8, *B*).

NOTES

Houma is finding favor in some States because of its good shape, usually good cooking quality, and high yield. In 1944, 185,033 bushels of certified seed was produced, mostly in Maine, New York, and Vermont. This variety is resistant to mild mosaic and net necrosis and very resistant to wart; also it has some drought resistance.

IRISH COBBLER

ORIGIN

The origin of Irish Cobbler is unknown. A commonly reported claim is that it was first grown by an Irish shoemaker of Marblehead, Mass. This circumstance is supposed to be the source of the name. Another claim is made that it was named for an Irish shoemaker of Lumberton, N. J., who first grew stock bearing that name from tubers found as a mixture in a shipment of Early Rose seed potatoes.

DESCRIPTION

PLANTS.—Medium in size, erect to spreading; stems thick to medium, prominently angled; nodes slightly swollen, green; internodes slightly pigmented, mottled, reddish purple; wings straight, sometimes slightly waved, frequently double at base of stem, green; stipules large, green, scantily pubescent; leaves medium in length, breadth, and type, light bluish green; midribs green, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, ovate, four pairs; petiolules green, sometimes with trace of color at base; secondary leaflets few, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence much branched; leafy bracts none; peduncles long, little pigmented or green, scantily pubescent; pedicels medium to short, little pigmented, scantily pubescent.

Flowers.—Calyx lobes medium to short, awl-shaped, tips slightly pigmented or green, scantily pubescent; corolla large, "lilac" with white tips (pl. 3, *F*); anthers orange yellow; pollen medium abundant, of poor quality; style straight; stigma globose, bilobed or not lobed, green.

Tubers.—Large to medium in size, roundish with blunt ends, the stem end often notched rather deeply giving a shouldered appearance to the tuber; skin smooth, creamy white; eyes shallow to rather deep, particularly in bud-eye cluster; eyebrows long, slightly curved, medium prominent; flesh white (pl. 7, *C*).

NOTES

Irish Cobbler, an important early variety of wide adaption, is grown in nearly every State. It produces a good yield of tubers of good shape except for the usually deep apical eyes. In 1944, 20 States certified 8,198,880 bushels. This variety is resistant to mild mosaic and immune from wart.

Katahdin

ORIGIN

Katahdin, which was originated by the United States Department of Agriculture from a cross between the unnamed U. S. D. A. seedlings Nos. 40568 and 24642, was first grown in 1923 at Presque Isle, Maine, (*4*). It was tested under the national potato-breeding program and released to growers in 1932.

DESCRIPTION

Plants.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes slightly pigmented or green; wings medium waved, prominently developed on upper third of stem, green; stipules large to medium in size, green, not pubescent; leaves long, broad, closed type, green; midribs green, scantily pubescent; petioles green, scantily pubescent; primary leaflets large, broadly ovate, four or five pairs; terminal leaflets ovate, base distinctly lobed; petiolules green; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence medium branched; leafy bracts none; peduncles long, green, scantily pubescent; pedicels long to medium, green, scantily pubescent.

Flowers.—Calyx lobes medium in length, little pigmented or green, scantily pubescent; corolla large to medium, "lilac" with white tips (pl. 2, *E*); anthers orange yellow; pollen abundant, of good quality; style straight, scarcely longer than anthers; stigma flattened globose, multilobed, green.

Tubers.—Large, short, elliptical to roundish, medium in thickness; skin smooth, dark creamy buff; eyes shallow, of same color as skin; eyebrows medium in length, curved, medium prominent; flesh white (pl. 7, *D*).

NOTES

Katahdin is a late-maturing variety adapted to a wide range of conditions. In 1944, 20 States certified 4,430,838 bushels. It produces tubers of good shape with shallow eyes and few culls, but the quality is generally medium though it is good in a few localities. The tubers set shallow and are subject to sunburn. Katahdin is one of the most valuable varieties for breeding, particularly for resistance to several of the common potato diseases; it has fertile pollen and carries one of the genetic factors for red tuber color and also for russeting of tubers. It is resistant to mild mosaic, net necrosis, and brown rot and immune from wart; it does not become infected with leaf roll as readily as most varieties.

LATE COBBLER

ORIGIN

Late Cobbler, a selection from Irish Cobbler by F. S. Hollenbeck, Tully, N. Y., about 1926, is apparently a sport of that variety.

DESCRIPTION

PLANTS.—Large, erect; stems medium in thickness, prominently angled; nodes slightly swollen, slightly pigmented, reddish purple; internodes slightly pigmented, reddish purple; wings slightly waved below, straight above, frequently double at base of stem, green; stipules large to medium, green, scantily pubescent; leaves long, medium in breadth, open type, bluish green; midribs slightly pigmented or green, scantily pubescent; primary leaflets large, ovate, four pairs; petiolules green, sometimes with trace of color at base; secondary leaflets medium in number, in two positions—on midrib between pairs of primary leaflets and on petiolules; tertiary leaflets few; inflorescence much branched; leafy bracts none; peduncles long, little pigmented, scantily pubescent; pedicels medium in length, green, scantily pubescent.

FLOWERS.—Calyx lobes short, awl-shaped, tips slightly pigmented, scantily pubescent; corolla medium in size, "lilac" with white tips; anthers orange yellow; pollen medium abundant, of poor quality; style straight; stigma globose, not or very obscurely lobed, green.

TUBERS.—Large, roundish with blunt ends, the stem end often notched rather deeply giving a shouldered appearance to the tuber; skin smooth, creamy white; eyes shallow to deep, particularly deep in bud-eye cluster; eyebrows long, slightly curved, medium prominent; flesh white.

NOTES

Late Cobbler was formerly grown to a limited extent in sections of New York and Ohio as a late crop to follow Irish Cobbler, which it closely resembles except that it is larger and later in maturing. It is of little importance at the present time either commercially or for breeding purposes. It is immune from wart.

McCORMICK

SYNONYMS

Late Hoosier and Lookout Mountain.

ORIGIN

McCormick was originated by Rev. T. B. McCormick, Princeton, Ind., and it was introduced by J. A. Foote, Terre Haute, Ind., about 1882.

DESCRIPTION

Plants.—Large, erect; stems thick, prominently angled; nodes slightly swollen, green; internodes slightly pigmented or green; wings inconspicuous, slightly waved or straight, green; stipules large to medium, green, not pubescent; leaves long, narrow, open type, dark green; midribs slightly pigmented at junction with petiolules, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, ovate, four or five pairs; base of terminal leaflets narrow, not lobed; petiolules green; secondary leaflets medium in number, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence much branched; leafy bracts none; peduncles long, green, scantily pubescent; pedicels long, little pigmented, scantily pubescent.

Flowers.—Calyx lobes short, awl-shaped; tips slightly pigmented, not or scantily pubescent; base of calyx usually green; corolla large, pink (between "pale amparo purple" and "phlox pink") with white tips (pl. 1, *A*); anthers orange yellow; pollen abundant, of good quality; style straight; stigma globose, bilobed, green.

Tubers.—Medium in size, ovate to oblong, somewhat flattened; skin flaked, rough, flesh-colored to light pink with splashes of red; eyes numerous, deep, red; eyebrows medium in length to long, curved, prominent; flesh white.

NOTES

McCormick is not commercially important, though small acreages are grown for home consumption chiefly in Maryland and southward and also westward through the South Central States. It is late in maturing and possesses ability to withstand heat and drought, but it produces tubers of very poor quality. It is susceptible to virus diseases, but immune from wart.

Mesaba

ORIGIN

Mesaba is from a cross between Russet Rural and Minnesota seedling 41–1, a seedling of Early Ohio (*20*). It was first grown by the Minnesota Agricultural Experiment Station, tested under the national potato-breeding program, and released to growers in 1938.

DESCRIPTION

Plants.—Medium in size, erect to spreading; stems medium in thickness, medium-angled; nodes not swollen, green; internodes green; wings slightly waved or straight, green; stipules medium in size, green, abundantly to scantily pubescent, short, fine; leaves medium in length, narrow, thick, ruffled, medium in type, dark green; midribs green, abundantly pubescent; petioles green, scantily pubescent; primary leaflets medium in size, ovate, four pairs; petiolules green; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence little branched; leafy bracts none; peduncles medium in length, first inflorescence inserted about halfway down on stem, green, abundant pubescence short; pedicels short, green, scantily pubescent.

Flowers.—Very few, abscising much; calyx lobes short, green, scantily pubescent; corolla small (diameter 21 mm.), lobes short, acuminate-pointed, very pale lilac (between "mauvette" and "lilac"); tips and a strip extending through center of lobes white; anthers light lemon yellow to greenish yellow; pollen scant; style bent; stigma globose, multilobed, green.

Tubers.—Medium in size, short, roundish, medium in thickness; skin slightly flaked to smooth, dark creamy buff; eyes shallow, of same color as skin; eyebrows medium in length, curved, medium prominent; flesh white (pl. 6, *B*).

NOTES

Mesaba is of limited adaptation; present production is chiefly in Minnesota where 14,400 bushels of certified seed was produced in 1944. This variety produces an early crop of high market and cooking quality. It has thick rugose leaves, a character that adds to the difficulty of roguing for virus diseases; it is immune from wart.

NITTANY COBBLER

ORIGIN

Nittany Cobbler was originated by the Pennsylvania Agricultural Experiment Station, and it was introduced to the commercial trade in 1935 (*27*). It was claimed to be a seedling of a selfed seedling obtained from a seed ball of naturally pollinated Irish Cobbler.

DESCRIPTION

For the description see Irish Cobbler, with which Nittany Cobbler appears to be indentical in morphological characters (p. 27).

NOTES

Nittany Cobbler is produced chiefly in Pennsylvania.

NORKOTA

ORIGIN

Norkota, which was originated by the United States Department of Agriculture from a cross between Rural New Yorker No. 2 and Katahdin, was first grown in 1931 at Presque Isle, Maine. It was tested and released to growers under the national potato-breeding program.

DESCRIPTION

PLANTS.—Large, spreading to decumbent; stems thick to medium, prominently angled; nodes slightly swollen, green; internodes green; wings much waved, green; stipules medium in size, green, not pubescent; leaves long, open type, green; midribs green, scantily pubescent; primary leaflets large, broadly ovate; terminal leaflets ovate to elliptical-ovate, base slightly lobed, apex short, acuminate-pointed; petiolules green; secondary leaflets medium in number, in two positions—on midrib between pairs of primary leaflets and on petiolules; tertiary leaflets medium in number; inflorescence medium branched; leafy bracts few; peduncles medium in length, green, scantily pubescent; pedicels medium in length, green, scantily pubescent.

FLOWERS.—Calyx lobes medium to short, awl-shaped, green, abundantly pubescent; base of calyx not pigmented; corolla medium in size, faint trace of pink when first opened, soon fading to white; anthers orange yellow; pollen medium abundant; style straight; stigma ovoid, bilobed or trilobed, green.

TUBERS.—Large to medium in size, oblong, flattened; skin flaked, white; eyes shallow, white; eyebrows medium in length, curved, medium prominent; flesh white.

NOTES

Norkota has commercial possibilities for sections of North Dakota because of its high yields and good tuber shape. It is somewhat resistant to hopperburn.

Pennigan

ORIGIN

Pennigan, which was claimed to be from a cross between Russet Rural and McCormick, was originated by the Pennsylvania Agricultural Experiment Station. It was introduced to the commercial trade in 1938 (*28*).

DESCRIPTION

For the description see Rural New Yorker No. 2, with which Pennigan appears to be identical in morphological characters (p. 36).

NOTES

Pennigan is produced chiefly in Pennsylvania.

Perfect Peachblow

ORIGIN

The origin of Perfect Peachblow is unknown. A variety of this name, claimed to be a seedling of the old White Peachblow, was originated by W. H. Rand, Shelburne, Vt. According to Stuart (*38*) this was not the Perfect Peachblow which is being grown in Colorado at the present time.

DESCRIPTION

Plants.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, medium pigmented, mottled, reddish purple; internodes medium pigmented, mottled, reddish purple; wings much waved, green; stipules small, green, not pubescent; leaves medium in length, breadth, and type; midribs distinctly pigmented at intersection with petiolules, scantily pubescent; petioles green, sometimes with color at base on upper surface; primary leaflets medium in size, four pairs; terminal leaflets elliptical-ovate, base narrowed or rounded, usually with small lobes; petiolules little pigmented or green, mostly green, frequently with color at base; secondary leaflets few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few; inflorescence medium branched; leafy bracts few; peduncles medium in length, little pigmented, scantily pubescent; pedicels medium in length, little pigmented, scantily pubescent; cork ring pigmented.

Flowers.—Calyx lobes medium to short, little pigmented, scantily pubescent; base of calyx green; corolla medium in size, light reddish purple (between "pale amparo purple" and "light amparo purple"), upper surface self-colored except tips usually flecked with white, undersurface central part of entire lobe white (pl. 3, *E*); anthers orange yellow; pollen scant, of poor quality; style straight; stigma ovoid, scarcely lobed, green.

Tubers.—Medium in size, round, flattened; skin reddish pink; eyes few, mostly at seed end, very shallow except bud-eye cluster, which is frequently depressed; eyebrows short, slightly curved, inconspicuous; flesh white (pl. 6, *C*).

NOTES

Perfect Peachblow is produced principally in Colorado, but there is a small acreage of it in New Mexico. It is immune from wart.

PONTIAC

ORIGIN

Pontiac, which is from a cross between Triumph and Katahdin (*26*), was first grown in 1931 by the Michigan Agricultural Experiment Station from seed produced by the United States Department of Agriculture. It was tested under the national potato-breeding program and released to growers in 1938.

DESCRIPTION

PLANTS.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes slightly pigmented, not mottled, reddish purple; wings straight, conspicuously double in lower half of stem, green; stipules large, green, scantily pubescent; leaves long, broad to medium, medium to closed type, green; midribs slightly pigmented at junction with petiolules; petioles green or with trace of color at base; primary leaflets large, broadly ovate, four pairs; petiolules medium pigmented; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence medium branched; leafy bracts few; peduncles long, little pigmented, scantily pubescent; pedicels long, little pigmented, scantily pubescent.

FLOWERS.—Calyx lobes short, little pigmented, scantily pubescent; corolla large, light reddish purple ("light amparo purple") with tips nearly white; anthers orange yellow, base bent outward causing space between anthers at base; pollen medium to scant; style straight; stigma globose, trilobed.

TUBERS.—Large, oblong to round, blunt at ends; skin smooth or sometimes netted, self-colored, red; eyes medium in depth, red; eyebrows medium in length, slightly curved, inconspicuous; flesh white (pl. 6, *F*).

NOTES

Pontiac, a high-yielding, late variety of value in sections where red varieties are in demand, is especially adapted to muck soils in Michigan. In recent tests it has shown promise in districts of Florida, Wisconsin, Minnesota, and North Dakota. In 1944, 10 States certified 253,947 bushels. It is susceptible to virus diseases.

PRESIDENT

SYNONYMS

Paul Krüger, President Krüger, No Blight, and Rustproof.

ORIGIN

The President variety, originally called Paul Krüger, was originated by G. Veenhuizen, Sappemeer, the Netherlands, from a cross between Richter's Imperator and Wilhelm Korn. It was introduced in 1896. The names Paul Krüger and President were used by Salaman (*32*) synonymously with President Krüger, which was listed by Snell (*34*) as a variety originated by Otto Cimbal from a cross between Daber and Erste von Frömsdorf and introduced in 1900.

DESCRIPTION

Plants.—Large, erect; stems medium in thickness, prominently angled; nodes slightly swollen, green; internodes slightly pigmented or green, pigmentation confined chiefly to axils in middle portion of stem and at base; wings straight or sometimes slightly waved, green; stipules small, green, not pubescent; leaves long, medium in breadth, open type, light bluish green; midribs green, not pubescent; petioles green, glabrous or nearly so; primary leaflets large to medium, oblong to ovate, four pairs; base of terminal leaflets generally decurrent; petiolules green; secondary leaflets few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few or none; inflorescence medium branched; leafy bracts none; peduncles long to short, slender, sometimes bent, variable, green; pedicels medium in length, green, scantily pubescent.

Flowers.—Calyx lobes medium in length, little pigmented, scantily pubescent; corolla large, pink ("phlox pink") with white tips (pl. 2, *A*); anthers orange yellow; pollen medium abundant; style straight; stigma globose, not lobed or very obscurely bilobed, green.

Tubers.—Small, generally ovate, flattened, very un-uniform in shape; some with apical end lopsided; others with basal end depressed or notched; skin somewhat netted, white with tendency to be more or less russeted; eyes medium in depth, of same color as skin; eyebrows medium in length to short, slightly curved, inconspicuous; flesh white.

NOTES

President, a very late maturing, blight-resistant variety, is of little commercial importance in this country. Because of its extreme lateness the vines are usually killed by frost before the tubers are fully grown; this killing results in only a small crop of tubers of marketable size. Production is confined chiefly to a few farms in Aroostook County, Maine. It is valuable for breeding for resistance to late blight and bacterial ring rot; it has some resistance to mosaic, but it is very susceptible to leaf roll and wart.

Quick Lunch

ORIGIN

A variety named Quick Lunch, claimed to be a seedling of Peachblow, was originated by Gideon Safford, North Bennington, Vt., in 1890. The present-day stock of Quick Lunch appears, however, to be identical with Noroton Beauty and Pride of the South, which are sports of Triumph; therefore the names may be considered synonymous.

DESCRIPTION

Plants.—Large, spreading; stems thick, slightly angled; nodes slightly swollen, much pigmented, reddish purple; internodes much pigmented, rarely mottled, reddish purple; wings not prominent, straight, green; stipules large, green, scantily pubescent; leaves long, broad, medium in type, green; midribs slightly pigmented, scantily pubescent; primary leaflets large, medium to narrow ovate, four pairs; petiolules much pigmented; secondary leaflets medium in number, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few; inflorescence little branched; leafy bracts none; peduncles long, much pigmented, scant pubescence, very short; pedicels medium in length, much pigmented, scantily pubescent; cork ring reddish purple.

Flowers.—Calyx lobes medium in length, green, scantily pubescent; corolla medium in size, "phlox pink"; anthers orange yellow; pollen scant; style straight; stigma globose, bilobed or trilobed, green.

Tubers.—Medium in size, round, thick; skin smooth, creamy white with splashes of red; eyes medium in depth, bud-eye cluster generally more or less depressed, red; eyebrows medium in length, slightly curved; flesh white.

NOTES

Quick Lunch is of no importance commercially or for breeding. It is susceptible to virus diseases.

RED McCLURE

ORIGIN

Red McClure is apparently a sport of Perfect Peachblow, differing from that variety only in color of the tubers.

DESCRIPTION

For the description of plant and flower characters, see Perfect Peachblow (p. 32).

TUBERS.—Medium in size, round, flattened; skin sometimes somewhat netted, red; eyes few, mostly at seed end, very shallow except bud-eye cluster, which is frequently depressed, red; eyebrows short, slightly curved, inconspicuous; flesh white.

NOTES

Red McClure is important commercially in the San Luis Valley in Colorado, where 701,771 bushels of certified seed was grown in 1944. It commands a premium in price in certain markets. It is susceptible to virus diseases, but immune from wart.

RED WARBA

ORIGIN

Red Warba, a sport of Warba, is from a tuber found in a sample of Warba potatoes by Axel Nelson, Fosston, Minn., in 1933. It was tested by the Minnesota Agricultural Experiment Station under the national potato-breeding program and released to growers in 1939 (*21*).

DESCRIPTION

PLANTS.—Medium in size, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes green; wings straight, green; stipules large, green, scantily pubescent; leaves long, medium in breadth and type, dark green; midribs green, sometimes with a trace of color in axil of midrib and petiolules, scantily pubescent; petioles green, scantily pubescent; primary leaflets large to medium in size, ovate, thick, somewhat cupped, four or five pairs; petiolules green; secondary leaflets medium in number, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence little branched; leafy bracts none; peduncles medium in length, green, scantily pubescent; pedicels short, green, scantily pubescent.

FLOWERS.—Many buds abscising before opening; calyx lobes short, little pigmented, abundantly pubescent; corolla medium in size, pink (between "pale amparo purple" and "phlox pink"), uniformly colored; anthers orange yellow to lemon yellow; pollen scant, of poor quality; style straight; stigma globose, obscurely multilobed, green.

TUBERS.—Medium in size, short, round; skin smooth, red, self-colored except for an occasional tuber with small white areas; eyes mostly deep, red; eyebrows long, slightly curved; flesh white (pl. 8, *C*).

NOTES

Red Warba, which is like Warba except in tuber color, is an early, high-yielding variety with commercial possibilities in sections where red varieties are in demand. Colorado, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming certified 247,490 bushels in 1944. This variety is susceptible to virus diseases.

RURAL NEW YORKER NO. 2

SYNONYMS

Rural New Yorker No. 2 is also known as Carman No. 3, Mortgage Lifter, Noxall, White Globe, and World Wonder. Also in recent years there have appeared in New York State under many varietal names stocks which are indistinguishable from Rural New Yorker No. 2; from the standpoint of their commercial classification they may be considered synonymous with Rural New Yorker No. 2. The best known of these are the following: Heavyweight, selected from Rural New Yorker No. 2 and introduced by F. C. Gibbs, Fillmore, N. Y.; No. 9, a selection from Rural New Yorker No. 2, introduced by a Mr. Andrews of the firm of G. W. Hickox & Son, Batavia, N. Y.; Pioneer Rural, discovered as a mutant from Russet Rural by Fred S. Hollenbeck, Tully, N. Y.; Toanco No. 4, a mutant found in a field of Russet Rural grown by Lewis A. Toan, Perry, N. Y. (*22*); Robson's Seedling, originated from true seed by Robson Brothers, Hall, N. Y.; and Mason Rural, claimed to be a seedling developed in Pennsylvania (*29*). These, together with Rural New Yorker No. 2, are designated collectively in commercial circles as Smooth Rurals.

ORIGIN

Rural New Yorker No. 2 was originated by E. S. Carman, editor of the Rural New Yorker, and was claimed to be a seedling of seedlings through several generations. It was introduced to Rural New Yorker subscribers in a very limited way in 1888 and to the commercial trade by J. M. Thorburn & Co. in 1889.

DESCRIPTION

PLANTS.—Large, erect; stems thick, prominently angled; nodes slightly swollen, purple; internodes medium pigmented, mottled, purple; wings medium to slightly waved, green; stipules large to medium in size, green, not pubescent; leaves medium in length, breadth, and type, dark green; midribs slightly pigmented at junction with petiolules, scantily pubescent; petioles usually pigmented in lower part, scantily pubescent; primary leaflets medium in size, ovate, four pairs; petiolules slightly pigmented at base; secondary leaflets medium in number, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence much branched; leafy bracts none; peduncles long, much pigmented, finely mottled or stippled, scantily pubescent; pedicels short, much pigmented, scantily pubescent.

FLOWERS.—Calyx lobes short, little pigmented except at tips, scantily pubescent; corolla medium in size, purplish violet ("manganese violet") with white tips (same as Russet Rural; see pl. 3, *A*); anthers lemon yellow; pollen scant, of poor quality; style straight or occasionally slightly curved; stigma ovate or flattened globose, multilobed, green.

TUBERS.—Large, broadly oblong, flattened; skin smooth, occasionally somewhat netted, creamy white; eyes few, shallow except for bud-eye cluster, which is frequently depressed; eyebrows medium in length, curved, inconspicuous; flesh white (pl. 7, *A*).

NOTES

Production of Rural New Yorker No. 2 is confined chiefly to eight of the States that produce late potatoes, the bulk of the acreage being in New York, Pennsylvania, Wisconsin, and Minnesota. In 1944, 75,116 bushels was certified in six States. Rural New Yorker No. 2 is a late variety, tolerant to heat and drought; during the hot summer period it develops slowly, but rapid growth follows when cool weather and abundant moisture prevail. It is of value in breeding for good tuber shape and carries a genetic factor for russet tubers. It is susceptible to virus diseases, fusarium wilt, and yellow dwarf and very susceptible to wart.

Russet Burbank

SYNONYMS

California Russet, Idaho Russet, Golden Russet, and Netted Gem.

ORIGIN

The origin of Russet Burbank is unknown.

DESCRIPTION

Plants.—Large to medium in size, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes slightly pigmented, finely mottled, reddish purple; wings straight, sometimes slightly waved and expanded on one internode in upper half of plant, green; stipules small, green, not pubescent; leaves long, medium in breadth and type, green; midribs slightly pigmented at base of petiolules, scantily pubescent; petioles green or slightly pigmented at base, scantily pubescent; primary leaflets large to medium in size, elliptical-ovate, four pairs; petiolules little pigmented; secondary leaflets medium in number, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts rarely present; peduncles long, generally slender, green, scantily pubescent; pedicels medium to short, much pigmented, scantily pubescent.

Flowers.—Calyx lobes medium in length, awl-shaped, green, scantily pubescent; corolla medium in size, white; anthers lemon yellow to greenish yellow; pollen scant, of poor quality; style curved near top, half as long again as the anthers; stigma flattened globose, multilobed, green.

Tubers.—Large, long, cylindrical or slightly flattened; skin russeted, heavily netted; eyes numerous and well distributed, shallow, sometimes protuberant; eyebrows short, curved, inconspicuous; flesh white (pl. 7, *E*).

NOTES

Russet Burbank is grown commercially for table stock in 10 States, the main production being in Idaho, Washington, Oregon, and California; in 1944, 1,783,384 bushels was certified in 10 States. It is subject to second growth under adverse growing conditions, and the best crops are produced under irrigation. It is late and produces tubers that are long, usually smooth, russeted, netted, and very mealy when grown under favorable conditions, thus making it especially desirable for baking. For its breeding value see "Notes" on Burbank. It is somewhat resistant to common scab but susceptible to virus diseases.

RUSSET RURAL

SYNONYMS

Late Petoskey, Dibble's Russet, and Rural Russet.

ORIGIN

Russet Rural, regarded as a sport of Rural New Yorker No. 2, was reported by Kotila (*17*) to have been found by George Priestley, Kalkaska, Mich., in a field of Rural New Yorker No. 2 in 1903.

DESCRIPTION

For the description of plant characters see Rural New Yorker No. 2 (p. 36), with which Russet Rural is identical except for the russet skin character of its tubers. (See also flower in pl. 3, *A*.)

TUBERS.—Large, broadly oblong, flattened; skin somewhat netted, russet, occasional tubers only partly russet; eyes few, shallow except for bud-eye cluster, which is frequently depressed, russet; eyebrows medium in length, curved, inconspicuous; flesh white.

NOTES

Russet Rural is grown commercially in nine of the States that produce late potatoes and in two of those that produce intermediate potatoes on a total acreage twice that of the Rural New Yorker No. 2. Large acreages are grown in Michigan, Pennsylvania, Wisconsin, Minnesota, Ohio, and New York; in 1944, 531,585 bushels was certified in eight States. It is very susceptible to wart, but somewhat resistant to common scab. Its breeding value is the same as that of Rural New Yorker No. 2.

SEBAGO

ORIGIN

Sebago, which was originated by the United States Department of Agriculture from a cross between Chippewa and Katahdin, was first grown in 1929 at Presque Isle, Maine (*37*). It was tested under the national potato-breeding program and released to growers in 1938.

DESCRIPTION

PLANTS.—Large, erect to spreading; stems thick, prominently angled; nodes slightly swollen, slightly pigmented; internodes much to medium pigmented, faintly or not mottled, reddish purple; wings slightly waved in upper part of plant, straight below, medium prominent throughout plant, green; stipules mostly large to medium, small above, green; leaves long, medium in breadth and type, green; midribs green, sometimes with trace of color in young growth, scantily pubescent; petioles long, green, scantily pubescent; primary leaflets medium in size, broadly ovate, three or four pairs; terminal leaflets elliptical, base distinctly lobed; petiolules green or sometimes with trace of color; secondary leaflets medium to few, in one position—on midrib between pairs of primary leaflets; tertiary leaflets few; inflorescence much branched; leafy bracts few; peduncles long, green, scantily pubescent; pedicels long, green, scantily pubescent.

FLOWERS.—Calyx lobes medium in length; tips and base of calyx sometimes slightly pigmented; corolla large to medium in size, "lilac," tips slightly lighter in color (pl. 2, *D*); anthers orange yellow; pollen scant, of poor quality; style straight; stigma ovoid or flattened globose, bilobed to multilobed, green.

Tubers.—Large, elliptical to round-elliptical, medium in thickness; skin smooth, "ivory yellow"; lenticels frequently conspicuous; eyes shallow, of same color as skin; eyebrows short, curved, medium prominent; flesh white (pl. 8, *A*).

NOTES

Sebago is one of the new varieties that is firmly established commercially and increasing in production in the Northeastern and Western States. In 1944, 11 States certified 1,801,596 bushels. This variety is late, high-yielding, and variable in cooking quality. It is resistant to mild mosaic and net necrosis; its vines and tubers are moderately resistant to late blight. It is resistant to brown rot in Florida, and resistance to yellow dwarf is indicated in tests in New York and Wisconsin. It is susceptible to wart.

Sequoia

ORIGIN

Sequoia, from a cross between Green Mountain and Katahdin (*11*), was first grown in 1930 by the North Carolina Agricultural Experiment Station from seed produced by the United States Department of Agriculture. It was tested under the national potato-breeding program and released to growers in 1939.

DESCRIPTION

Plants.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes green; wings much waved, green; stipules large to medium, green, scimitar-shaped, nearly sessile, scantily pubescent on under side, not pubescent on upper side; leaves long, broad, medium in type, green; midribs green, scantily pubescent; petioles green, scantily pubescent; primary leaflets large, elliptical-ovate, four pairs; base of terminal leaflets rounded, usually slightly lobed; petiolules green; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts none; peduncles long to medium, green, scantily pubescent; pedicels medium in length, green, scantily pubescent.

Flowers.—Calyx lobes short, green, abundantly pubescent; base of calyx green; corolla medium in size, white (pl. 1, *B*); anthers lemon yellow to greenish yellow, short (about 6 to 7 mm. long); pollen scant; style straight; stigma globose, bilobed, green.

Tubers.—Large, roundish, flattened; skin smooth, white; eyes shallow, bud-eye cluster frequently depressed, more pronounced in large tubers, white; eyebrows medium in length, slightly curved, not prominent; flesh white (pl. 6, *E*).

NOTES

Although rather new, Sequoia is under test in most States. Twelve States certified 209,028 bushels of seed in 1944. This variety produces very late, high-yielding tubers, good-shaped except when oversize; their quality is generally medium to good. This variety requires less fertilizer than most varieties for the production of large yields. It is somewhat resistant to mild mosaic and late blight and immune from wart. It is especially valuable for its resistance to leafhopper and flea-beetle injury in areas where these insects are prevalent.

SPAULDING ROSE

SYNONYMS

King, Pride of the West, Rose No. 4, and Spaulding No. 4. From correspondence available to the authors it appears that Pride of the West was an early or possibly the original name of this variety. It is stated that stock commonly known by this name was grown by S. T. Spaulding, Avoca, N. Y. Selections were made by Spaulding and given the names Spaulding Rose, Spaulding No. 4, and Rose No. 4. These names are now regarded as synonymous.

ORIGIN

The origin of Spaulding Rose is unknown.

DESCRIPTION

PLANTS.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, medium pigmented, reddish purple; internodes medium pigmented, mottled, reddish purple; wings prominently developed in upper part of stem, waved, green; stipules small, green, not pubescent; leaves long, narrow, open type, green; midribs pigmentation medium, scantily pubescent; petioles green, scantily pubescent; primary leaflets medium in size, elliptical-ovate, four or five pairs; base of terminal leaflets generally truncate; petiolules medium pigmented; secondary leaflets many, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence medium branched; leafy bracts none; peduncles medium in length, much pigmented, stippled, abundant pubescence fine; pedicels medium to short, green, abundantly pubescent.

FLOWERS.—Calyx lobes short, awl-shaped, green; corolla small, white; anthers lemon yellow to greenish yellow; pollen scant, of poor quality; style straight; stigma green.

TUBERS.—Medium in size, broadly oblong, flattened; skin smooth, self-colored, red; eyes medium in depth; eyebrows short, curved, inconspicuous; flesh white, streaked with pink in some tubers.

NOTES

The commercial importance of Spaulding Rose, which is not in demand as a late potato in eastern markets because of the red color of its tubers, is rapidly declining. Maine produced 193 bushels of certified seed in 1944. This variety is resistant to mild mosaic and immune from wart.

TRIUMPH

SYNONYMS

Bliss, Bliss Triumph, Red Bliss, Coconino Red, Hawaiian Rose, and Stray Beauty.

ORIGIN

Triumph, which originated in Connecticut and was introduced by B. K. Bliss & Sons in 1878, was claimed to be a seedling of a cross between Peerless and Early Rose.

DESCRIPTION

Plants.—Large to medium, spreading; stems thick, slightly angled; nodes slightly swollen, medium pigmented, reddish purple; internodes medium pigmented, reddish purple; wings straight or slightly waved, not prominent, green; stipules large, green; leaves long, broad, medium type; midribs reddish purple, scantily pubescent; primary leaflets large, ovate, four pairs; petiolules medium pigmented; secondary leaflets many; tertiary leaflets many; inflorescence medium branched; leafy bracts none; peduncles medium in length, pigmented, scantily pubescent; pedicels medium in length, pigmented, scantily pubescent; cork ring reddish purple.

Flowers.—Calyx lobes medium in length, green, scantily pubescent; corolla medium in size, pink ("phlox pink") (pl. 3, *D*); anthers orange yellow; pollen scant; style straight; stigma globose, bilobed or trilobed, green.

Tubers.—Large to medium, round, thick; skin smooth, self-colored, red; eyes medium in depth, bud-eye cluster generally more or less depressed; eyebrows medium in length, curved; flesh white (pl. 8, *D*).

NOTES

Triumph, an early variety of wide distribution, is grown commercially in 25 States; it is of greatest importance in Southern and Midwestern States. Although this variety is produced chiefly for the early market, a small acreage is grown as a late main crop in sections of Colorado and Nebraska. In 1944, 5,546,558 bushels of certified seed was produced. This variety is high-yielding, of good shape, and susceptible to most or possibly all of the common potato diseases, including wart. It is of value in breeding for earliness, high yield, and red tuber color.

Up-to-Date

SYNONYM

The use of "British Queen" as a synonym for Up-to-Date is applicable only in this country, where much of the stock of Up-to-Date, particularly that grown in the Western States, is erroneously called "British Queen." The true British Queen is a distinct variety which originated in Great Britain. So far as known it is not grown in the United States.

ORIGIN

Up-to-Date was originated by Archibald Findlay, of Scotland, in the late eighties from a cross between Paterson's Victoria and Blue Don.

DESCRIPTION

Plants.—Large, spreading; stems thick, prominently angled; nodes slightly swollen, slightly pigmented, reddish purple; internodes medium pigmented, mottled, reddish purple; wings medium in prominence, much to slightly waved, green; stipules medium to small, green, not pubescent; leaves very long, broad, closed type, green; midribs green, sometimes with a trace of color at junction with petiolules; petioles green, scantily pubescent; primary leaflets large, ovate to elliptical-ovate, base of lateral leaflets lobed, lobes raised, frequently clasping petiolule, four or five pairs; petiolules green; secondary leaflets many, large, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets medium in number; inflorescence much branched; leafy bracts medium in number; peduncles long, somewhat flattened, little pigmented at base, scantily pubescent; pedicels long, green, scantily pubescent.

Flowers.—Calyx lobes medium in length, little pigmented, scantily pubescent; corolla large, light reddish purple ("pale amparo purple") with white tips (pl. 1, *F*); anthers orange yellow or lemon yellow; pollen scant, of poor quality; style straight; stigma globose, prominently bilobed or trilobed, green.

Tubers.—Large, oblong to somewhat obovate, flattened; skin generally more or less flaked, cream-colored; eyes few, very shallow, mostly at seed end; eyebrows short, slightly curved, inconspicuous; flesh white.

NOTES

Up-to-Date is grown to some extent in the Pacific Coast States under the name "British Queen." It is late, produces tubers of good shape and quality, and is susceptible to virus diseases and wart.

Warba

ORIGIN

Warba, which was originated in 1927 by the Minnesota Agricultural Experiment Station, tested by the national potato-breeding program, and released to growers in 1933, was from a cross between Triumph and Minnesota seedling No. 4–16 (*19*).

DESCRIPTION

Plants.—Medium in size, spreading; stems thick, prominently angled; nodes slightly swollen, green; internodes green; wings straight, green; stipules large, green, scantily pubescent; leaves long, medium in breadth and type, dark green; midribs green, scantily pubescent; petioles green, scantily pubescent; primary leaflets large to medium, ovate, thick, somewhat cupped, four or five pairs; petiolules green; secondary leaflets medium in number, in three positions—on midrib between pairs of primary leaflets, at junction of midrib and petiolules, and on petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts none; peduncles medium to short, green, scantily pubescent; pedicels medium in length, green, scantily pubescent.

Flowers.—Few, buds abscising much before opening; calyx lobes short, little pigmented, abundantly pubescent; corolla medium in size, pink (between "pale amparo purple" and "phlox pink"), uniformly colored; anthers orange yellow to lemon yellow; pollen scant; style straight; stigma flattened globose, obscurely multilobed, green.

Tubers.—Medium in size, short, round; skin creamy white, frequently with reddish areas around eyes; eyes mostly deep, red; eyebrows long, slightly curved, conspicuous because of red color; flesh white.

NOTES

Warba, an early, very high yielding variety, is widely distributed but is grown as a commercial crop only in the Midwestern States. Its tubers have deep eyes and unattractive color, which has led to discrimination against it in some markets. In 1944, 110,799 bushels of certified seed was produced, mostly in Minnesota, North Dakota, Maine, and New York. It is difficult to maintain healthy seed stock of this variety because it is susceptible to mosaic and wart.

White Gold

ORIGIN

White Gold, originated by George Kramer, Grand Rapids, Minn., was claimed to be a seedling of Green Mountain.

DESCRIPTION

Plants.—Medium in size, spreading, becoming somewhat decumbent after blooming; stems medium in thickness, prominently angled; nodes slightly swollen, green; internodes green; wings generally prominently waved, double in midsection of stem, green; stipules medium in size, green, not pubescent; those of lowest peduncle scimitar-shaped, clasping or divergent, sometimes unequal in size; leaves medium in length, breadth, and type; midribs green, scantily pubescent; primary leaflets medium in size, oblong; petiolules green; secondary leaflets medium in number, in two positions—on midrib between pairs of primary leaflets and at junction of midrib and petiolules; tertiary leaflets few; inflorescence little branched; leafy bracts none; peduncles medium in length, green, scantily pubescent; pedicels medium in length, green, scantily pubescent.

Flowers.—Calyx lobes long to medium, green, scantily pubescent; corolla medium in size, white; anthers orange yellow; pollen medium abundant; style straight; stigma flattened globose, multilobed, green.

Tubers.—Medium in size, oblong to roundish, medium in thickness; skin smooth, white; eyes medium in depth, white; eyebrows medium in length, curved, slightly prominent; flesh white.

NOTES

White Gold, an early variety with rather weak vines, is of little commercial or breeding value. Its distribution is very limited, confined chiefly to a small acreage in Minnesota.

White Rose

SYNONYMS

American Giant, Wisconsin Pride, and Late Pride.

ORIGIN

A variety known as American Giant is claimed to have been originated by Mrs. Rachel Campbell, Hebron, N. Y., in 1893, from a seed ball of the Jackson potato. References to an American Giant variety claimed to have originated in western New York had appeared in 1881 in the potato catalog (*p. 11*) of B. K. Bliss & Sons and in 1891 in that (*p. 12*) of L. L. Olds. Whether there is a date discrepancy or two distinct varieties known as American Giant have been produced is not known.

Since 1871 the name White Rose has been applied to numerous introductions. The information about most of them is not sufficient to determine their relationship to the White Rose now grown extensively in California and to a less extent in other Western States. One introduction called White Rose, however, is claimed to have been a selection from Wisconsin Pride by H. L. Musser, of the Aggeler & Musser Seed Co. From this selection the name has been extended to a general application to Wisconsin Pride stocks so that these names are now used interchangeably.

A comparative study of lots bearing the respective names American Giant, Wisconsin Pride, Late Pride, and White Rose grown in the collections of the United States Department of Agriculture during the past decade and a half has shown them to be identical; thus, for present-day stocks these names may be considered synonymous. The preferred name is White Rose, as stocks of this variety bearing the name American Giant are no longer grown commercially.

DESCRIPTION

Plants.—Large, spreading; stems medium in thickness, prominently angled; nodes slightly swollen, green; internodes green, or sometimes slightly pigmented on upper part of stem, reddish purple; wings slightly waved on most of stem, distinctly waved on upper part, green; stipules medium in size, green, not pubescent; leaves medium in length, breadth, and type, green; midribs green, scantily pubescent; petioles generally green, sometimes base of upper petioles pigmented; primary leaflets medium in size, ovate, four or five pairs; petiolules green; secondary leaflets few, in two positions—on midrib between pairs of primary leaflets and at junction of midrib and petiolules; tertiary leaflets few; inflorescence medium branched; leafy bracts none; peduncles medium in length, green, scantily pubescent; pedicels medium in length, green, scantily pubescent.

Flowers.—Calyx lobes short, awl-shaped, green, scantily pubescent; base of calyx not pigmented; corolla large to medium in size, white (pl. 2, *B*); anthers orange yellow or lemon yellow; pollen scant, of poor quality; style straight; stigma globose, bilobed or trilobed.

Tubers.—Large, long, elliptical, flattened, usually irregular; skin smooth, white; eyes numerous, medium in depth; eyebrows medium in length, curved; flesh white.

NOTES

In 1944, 1,537,254 bushels of certified seed of the White Rose variety was grown in 12 States, principally on the Pacific coast and in nearby States where the variety is gaining in importance. It is especially adapted to irrigated districts, where a uniform supply of moisture can be maintained. Under adverse growing conditions the tubers are subject to second growth. This variety is susceptible to wart.

NOTES ON 14 OTHER VARIETIES

For reference purposes notes are included on 14 varieties that were not grown in the tests with the 39 described in detail. These varieties are about to become extinct or have disappeared commercially but are grown locally for home consumption. This group includes a few varieties which were formerly well known commercially and which have been replaced by better ones, others which do not conform to market standards because of purple tuber color but which have been carried along in gardens for many years because of special qualifications, and a few of recent origin that are being discontinued because of undesirable characteristics. It is probable that there are also other varieties limited to garden production for family use about which little or no information is available.

Beauty of Hebron

Beauty of Hebron is generally claimed to have been originated by E. L. Coy, Hebron, N. Y., as a seedling of Garnet Chili. It was introduced in 1878 by J. M. Thorburn & Co. Another claim is that it was originated in 1877 by Mrs. Rachel Campbell, Hebron, N. Y., as a chance seedling of the variety Peachblow and introduced commercially through the instrumentality of Mr. Coy.

The plants of this variety are large and spreading and bear white flowers. The tubers are long, distinctly flattened and creamy white with areas of light pink or flesh color. The variety was well known about 60 years ago, particularly in New England and New York State. It is believed to be grown in a few gardens at the present time for home consumption, but so far as known it has disappeared from the commercial trade.

BLUE CHRISTY

Blue Christy, a variety of unknown origin, produces long purplish tubers, usually distinctly flattened at the basal end. It is occasionally grown in Maine, in gardens for home consumption, because of its high quality when baked.

COLUMBIA RUSSET

Columbia Russet, a seedling of Wee McGregor, was originated by William Scott, a grower in the Parsons district, Columbia Valley, British Columbia, Canada, in 1919.

The plants are large and spreading and bear white flowers. The tubers are long, with russet skin. Favorable reports have been received regarding the yield and table quality of this variety. It is, however, susceptible to common scab and to some of the mosaics. It has been grown to a limited extent to determine its adaptation in the Pacific Northwest and in North Dakota, but it does not appear likely to become permanently established in these areas.

COWHORN

Cowhorn, an old variety of unknown origin, is known to have been grown in gardens for more than 60 years, particularly in New England. The plants are large and somewhat spreading, and the flowers are white. The tubers are long, curved, cylindrical, and pointed and have purple skin. This variety is highly prized for its excellent quality when baked.

EARLAINE NO. 2

Earlaine No. 2, which originated about 1930 as a seedling by the United States Department of Agriculture, is of unknown parentage. The plants are medium in size and somewhat spreading, and the flowers are white. It is similar to the true Earlaine in these characteristics except that the plants are slightly larger and later in maturity. The tubers are round to round-oblong and white. Although it was not introduced to the commercial trade through the regular channels, its distribution was started from a few tubers taken from the breeding plots at Aroostook Farm, Presque Isle, Maine, by a visiting grower. Because of its high-yielding ability it has been grown in a few districts, particularly in Aroostook County, Maine. Its inferior table quality has led to discrimination against it in some of the markets.

EARLY BLUE

Early Blue is apparently an old variety of unknown origin. The chief characteristics are the medium to small, spreading plants with much purplish pigment in the stems and petioles. The tubers are somewhat oblong, smooth, and purplish. So far as known this variety is now grown only for home consumption on a few farms in western Maryland.

GOLDEN

Golden, which was originated by the United States Department of Agriculture from a cross between the unnamed U. S. D. A. seedlings

Nos. 43106 and 43543, was first grown in 1928 at Presque Isle, Maine (*4*). The plants are large and spreading and the flowers are white. The tubers are of medium size, roundish, and dark creamy buff; they have medium-shallow eyes of the same color as the skin except for the central eye in the apical bud cluster, which is "pale rose-purple." The flesh is pale yellow. The tubers are very attractive in appearance, but the characteristic of premature sprouting, which they possess when removed from low storage temperatures, detracts from their market value.

The range of adaptation of Golden is very limited. Because of the large number of tubers that are usually set, a large percentage is likely to fail to reach the size required for No. 1 grade unless grown under the most favorable conditions, particularly with respect to temperature and moisture. The results of tests in several States have shown that Aroostook County, Maine, and the Upper Peninsula of Michigan are the only districts in which the variety produces large yields of marketable tubers.

IMPROVED PEACHBLOW

Improved Peachblow is apparently an old variety, one of the many Peachblow seedlings that appeared 60 to 75 years ago. It is not definitely known whether the present-day stock that bears this name is the Improved Peachblow which was originated in 1873 by Albert Rand, Shelburne, Vt., as a seedling of Jersey Peachblow crossed with Excelsior, as no authentic material of the original Improved Peachblow is available for comparison. Improved Peachblow is distinct from the Perfect Peachblow that is grown in Colorado, although the two names have been used synonymously by some writers. It is a late-maturing variety with large, spreading plants. The tubers are of medium size and white with flesh-colored to reddish splashes and red eyes. Little is known regarding its distribution, although seed stock is known to have been carried in recent years by dealers in Richmond, Va. Its production appears to be confined to small local acreages grown in Virginia for home use.

MAHR'S RUSSET

Mahr's Russet was originated in 1927 by Robert Mahr, Laramie, Wyo., as a sport of a white variety that he was growing. For a few years it was grown to a limited extent in the vicinity of Laramie, but its production is now being discontinued; this discontinuation is attributed to its susceptibility to fusarium rots. The table quality of Mahr's Russet is very inferior. This variety possesses considerable resistance to common scab. It is of value for breeding purposes, as it carries factors for resistance to this disease as well as for russet skin.

PEERLESS

Peerless, for which Bresee's No. 6 and Pearl are synonyms, was originated by Albert Bresee, Hubbardton, Vt., in 1862; it was claimed to be a seedling of Garnet Chili from the same seed ball as Early Rose.

The plants are large and spreading, the main stems becoming somewhat decumbent as the plants approach maturity; flowers are few because of abscission of most of the buds before opening; the corolla is white and the anthers pale lemon yellow. Tubers are large to medium, round to ovate, flattened, frequently with heart-shaped bases; the skin is dull white except for a pinkish tinge around the eyes, particularly at the apical end when freshly dug, but it gradually fades to white during storage.

For many years this variety, under the name Pearl, was extensively grown in the Greeley, Colo., district and to a limited extent in neighboring States. Although a high-yielding variety when grown under favorable conditions, it has recently been replaced by other varieties because of its susceptibility to some of the virus diseases and of its tendency to produce knobby tubers when conditions for growth are not ideal.

PEOPLE'S

In plant characteristics and tuber shape People's (People's Russet) very closely resembles the Peerless; however, the tubers differ in color, those of People's being distinctly russeted, whereas those of Peerless are, when first dug, a dull white with a pinkish tinge around the eyes that fades to white during storage. In tests in which the eyes of the seed pieces were removed before planting, plants were obtained that produced tubers of the Peerless type, thus indicating that People's is a sport of Peerless. This variety apparently is not identical with one of the same name listed by Stuart (*38*), which is claimed to have originated in Illinois in 1885 as a seedling from a cross between Minnesota Seedling and Pearl of Savoy. People's was at one time grown to a limited extent in Colorado and southern Idaho, but is now extinct or nearly so

SEBEC

Sebec, a variety of unknown origin, is reported as having been grown in Chittenden, Vt., over 70 years ago. So far as known it has never been produced on a commercial basis. In recent years, aside from experimental stock, it has been reported only as a garden variety in southern Vermont.

The plants are large, spreading; the tubers are small, oblong to elliptical; the eyes are deep; the flesh is faintly yellow. The variety is of no commercial importance, but it is of value for genetic studies, because it carries a factor for purple tuber color.

STRAWBERRY

Strawberry is probably a local name of an old variety, said to have been given it because of the resemblance of the young plants to strawberry plants. This variety very closely resembles one grown in the test plots of the United States Department of Agriculture at Presque Isle, Maine, several years ago under the name Early Spaulding Rose. Both of these varieties correspond so closely to descriptions of the Early Manistee, claimed to be a seedling of Early Rose, which was introduced in 1904, as to suggest that the three names may be synonymous. Positive identification, however, is not possible at this time, as stock of Early Manistee known to be authentic is no longer available.

The Strawberry may readily be mistaken for Spaulding Rose (p. 40), which it resembles in many respects. In general appearance the plants of the two varieties are similar except that those of the Strawberry are somewhat smaller. The tubers of both varieties are similar in size, shape, and color. The Strawberry is somewhat earlier in maturity and of better table quality. At the present time it is grown for home use to a very limited extent in the vicinity of Ashland, Maine.

WHITE McCORMICK

White McCormick is a variety of unknown origin, but it is believed to be a sport of McCormick, which it very closely resembles except that the tubers are creamy white with reddish eyes. Formerly grown to a very limited extent in the same range as McCormick, it is rarely to be found at the present time.

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INDEX TO SYNONYMOUS VARIETAL NAMES[5]

Page
American Giant 43
Barkley's Prolific 19
Bliss 40
Bliss Triumph 40
Bresee's No. 2 19
Bresee's No. 6 46
"British Queen" 41
Burbank's Seedling 19
California Russet 37
Carman No. 3 36
Coconino Red 40
Dibble's Russet 38
Earliest of All 20
Golden Russet 37
Hawaiian Rose 40
Heavyweight 36
Idaho Rural 20
Idaho Russet 37
Jersey Red Skin 21
King 40
Late Hoosier 29
Late Petoskey 38
Late Pride 43
Lookout Mountain 29
Mason Rural 36
Mitchell 26

Page
Mortgage Lifter 36
Netted Gem 37
No Blight 33
Noroton Beauty 34
Noxall 36
No. 9 36
Paul Krüger 33
Pearl 46
People's Russet 47
Pioneer Rural 36
President Krüger 33
Pride of the South 34
Pride of the West 40
Prolific 19
Red Bliss 40
Robson's Seedling 36
Rose No. 4 40
Rural Russet 38
Rustproof 33
Smooth Rurals 36
Spaulding No. 4 40
Stray Beauty 40
Toanco No. 4 36
White Globe 36
Wisconsin Pride 43
World Wonder 36

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[5] Preferred names are listed alphabetically in the table of contents.

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